ENGINEERING NEWS-RECORD

Many firsts for bronze-faced Seagram Building p. 45

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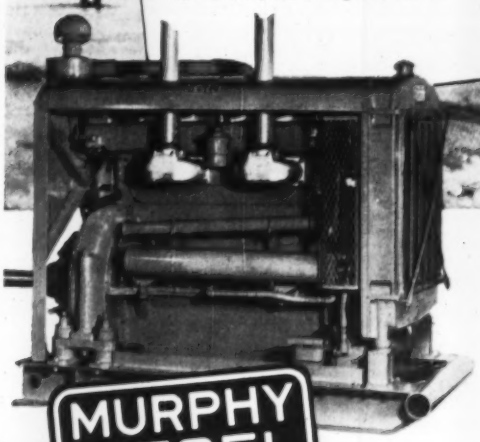

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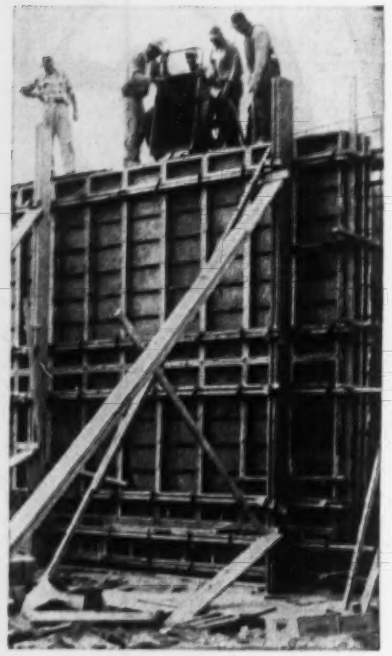

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ENGINEERING NEWS-RECORD, Vol. 158, No. 24, JUNE 13, 1957

Published weekly by McGraw-Hill Publishing Company, James H. McGraw (1860-1948), Founder. Publication Office, 99-129 North Broadway, Albany 1, N. Y. See panel below for directions regarding subscriptions or change of address. **Executive, Editorial, Advertising and Circulation Offices, McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Donald C. McGraw, President; L. Keith Goodrich, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice President, Publications Division; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Coordinator. **Subscriptions are solicited only from persons with identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.** United States subscription rate for individuals in the field of this publication $6.00 per year, single copies 50 cents; foreign $20.00 per year, payable in advance. Second Class mail privileges authorized at Albany, New York. Printed in U.S.A. Title registered in U.S. Patent Office.

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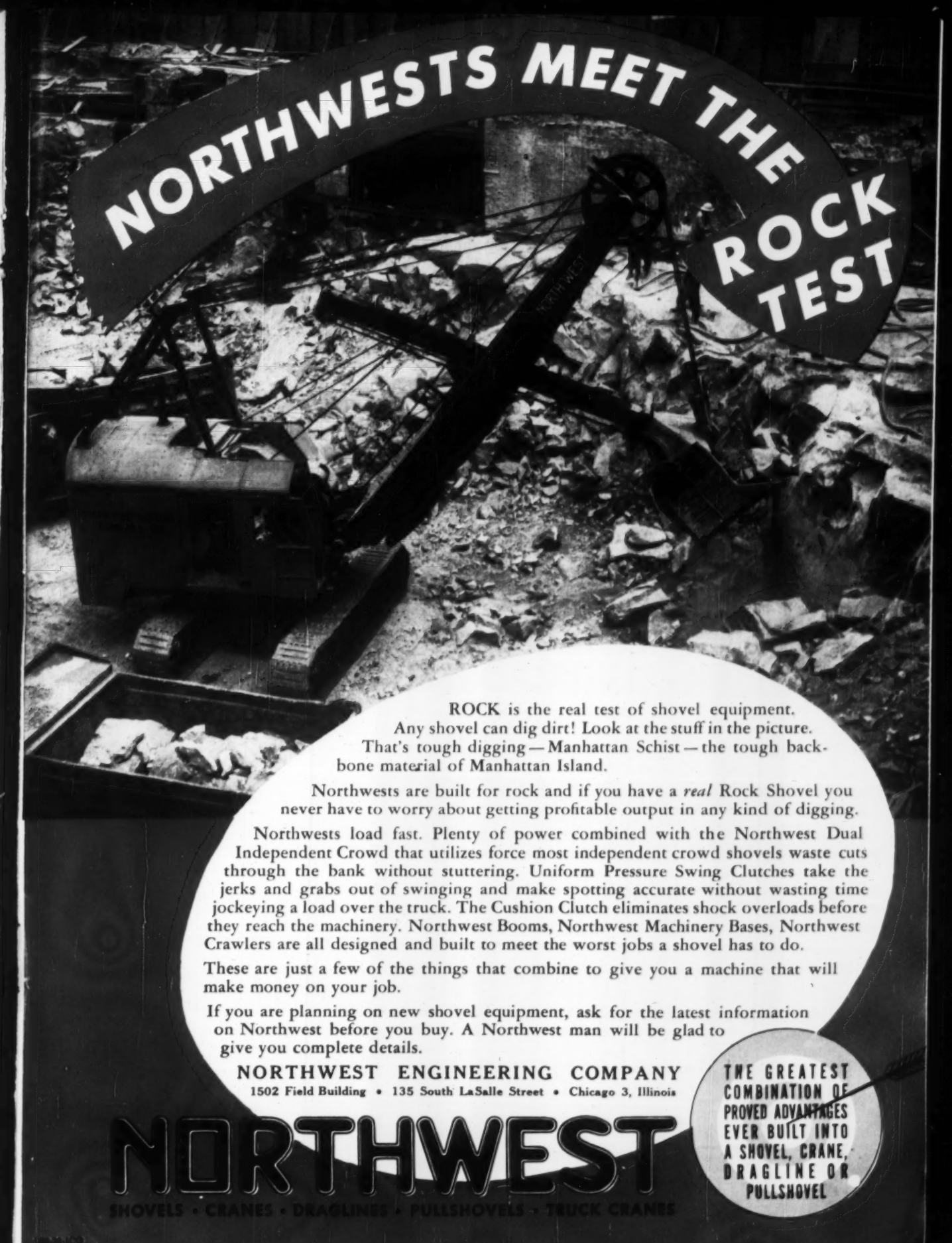

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Northwests are built for rock and if you have a *real* Rock Shovel you never have to worry about getting profitable output in any kind of digging.

Northwests load fast. Plenty of power combined with the Northwest Dual Independent Crowd that utilizes force most independent crowd shovels waste cuts through the bank without stuttering. Uniform Pressure Swing Clutches take the jerks and grabs out of swinging and make spotting accurate without wasting time jockeying a load over the truck. The Cushion Clutch eliminates shock overloads before they reach the machinery. Northwest Booms, Northwest Machinery Bases, Northwest Crawlers are all designed and built to meet the worst jobs a shovel has to do.

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"Texaco Marfak stays

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You can see why the Tulloch Dam is a tough job – and mid-summer heat makes it even tougher on bearing grease. "It's the stay-put quality of *Texaco Marfak* that's most valuable to us on this job. Even under heavy shock loads, *Texaco Marfak* stays in chassis bearings. It seals out dust and dirt – and prevents rust. It has meant longer life for our parts, lower maintenance cost, and, above all, our equipment stays on the job."

Mud and dirt are kept out of wheel bearings too by *Texaco Marfak Heavy Duty 2*. This assures safer braking and extra miles between lube jobs. No seasonal change is ever needed with *Texaco Marfak Heavy Duty 2*.

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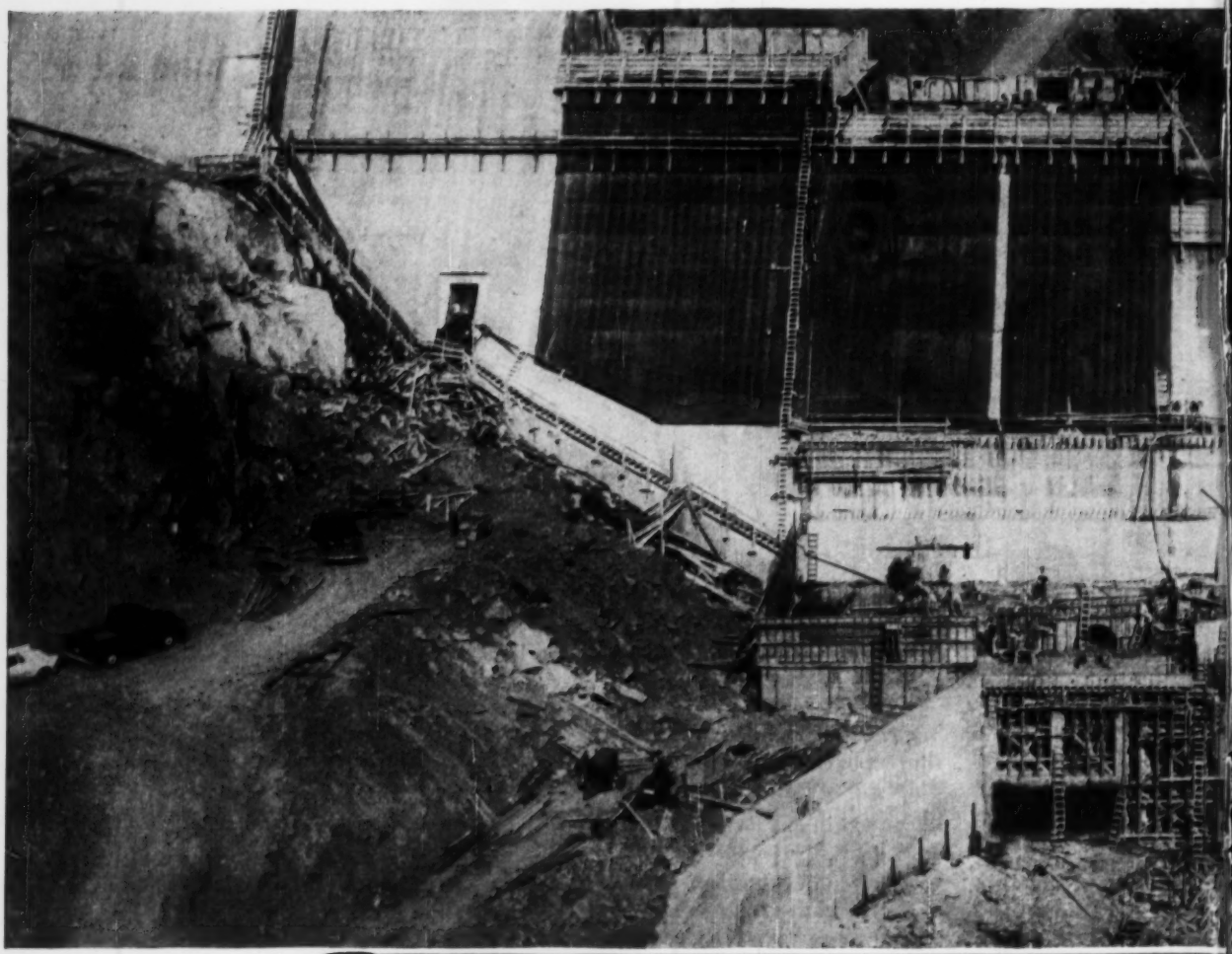

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in the bearings longer"

ness of their diesel engines which use *Texaco Ursa Oil Heavy Duty*. Like all *Texaco Ursa Oils* it makes diesels and heavy duty gasoline engines deliver more power with less fuel over longer periods between overhauls.

Your crawler mechanisms will work smoother when fully protected like those on the Tulloch Dam job with *Texaco Track Roll Lubricant*. And you'll be sure your drills—running or idle—are protected against rust with *Texaco Rock Drill Lubricant EP*.

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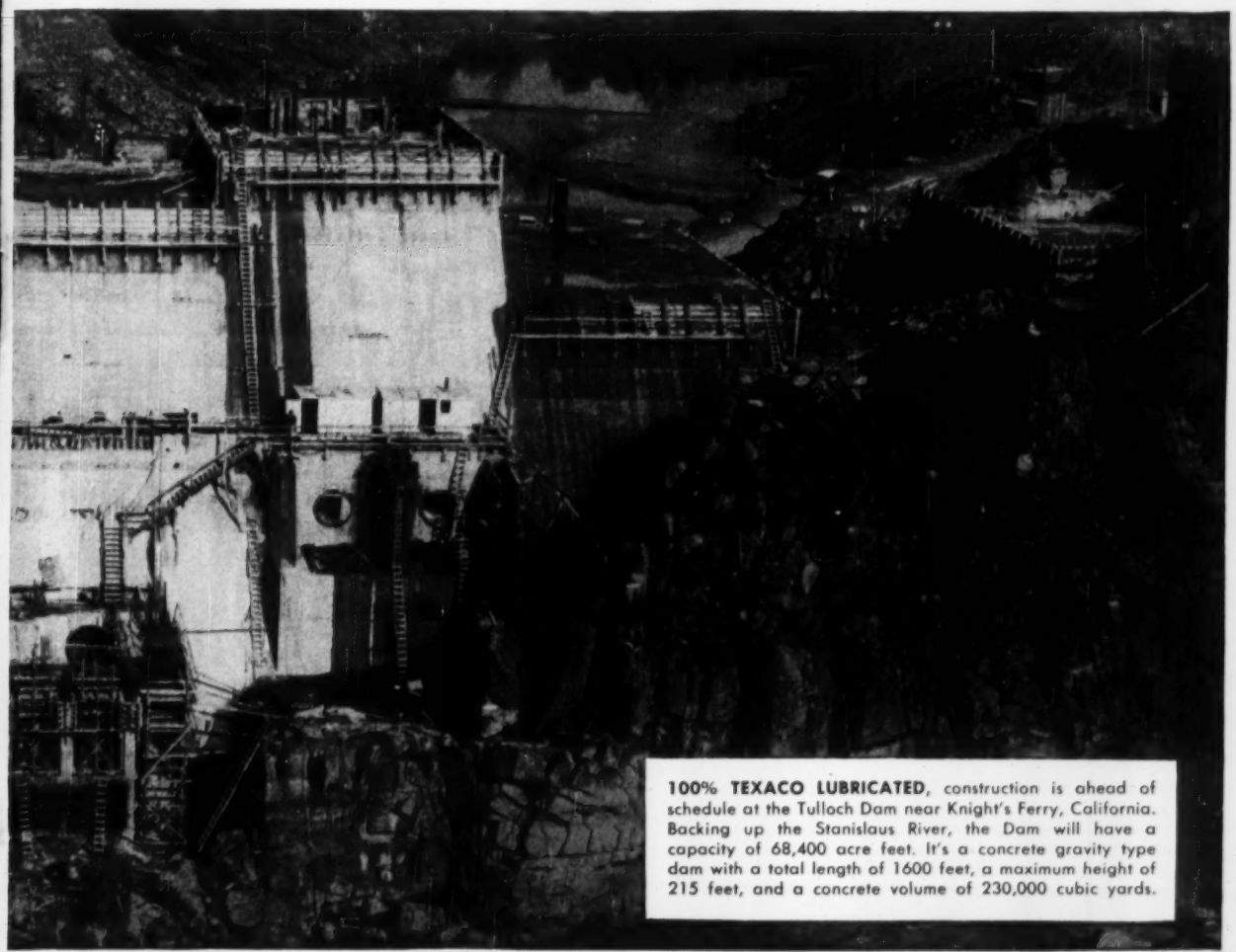

100% TEXACO LUBRICATED, construction is ahead of schedule at the Tulloch Dam near Knight's Ferry, California. Backing up the Stanislaus River, the Dam will have a capacity of 68,400 acre feet. It's a concrete gravity type dam with a total length of 1600 feet, a maximum height of 215 feet, and a concrete volume of 230,000 cubic yards.

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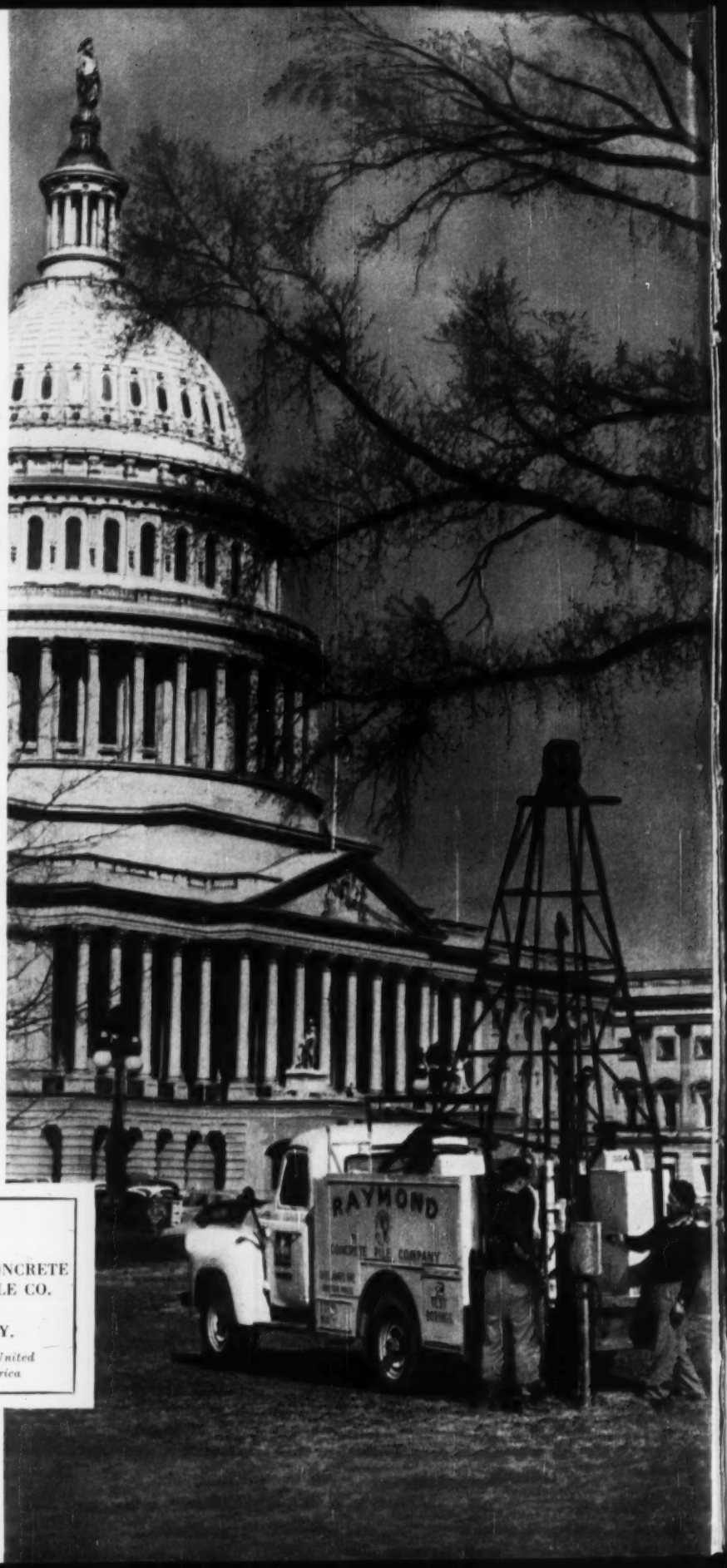
At right, Raymond boring rig in action on one of many special projects in Washington, D. C.



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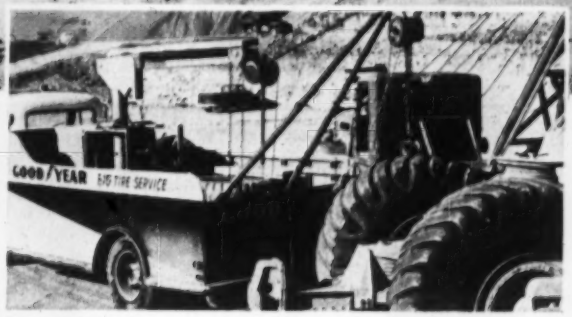

SECOND ONLY TO THE PANAMA CANAL in earth-moving magnitude, this 8½-million-yard cut created a canyon 1,370 feet wide and 350 feet deep at San Francisco's Carquinez crossing. Although much rock was encountered, blasting was kept to a minimum and rippers and scrapers helped keep the pace close to 30,000 yards per two-shift day! Goodyear 3-T Nylon Cord HARD ROCK LUG tires took this tough rap in stride.

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NOW IN 3-T NYLON CORD — TUBE-TYPE OR *TUBELESS!*

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Road Lug, Sure-Grip, All-Weather—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

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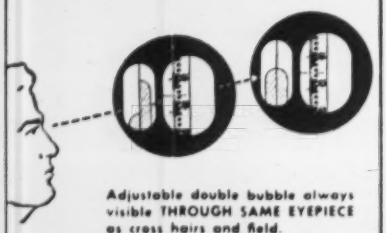

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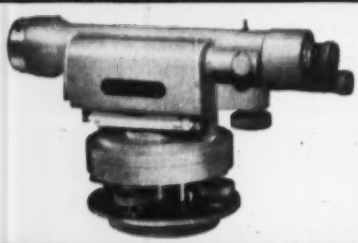

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Reader Comment

Bid Alternates Impractical

SIR—In ENR May 9, p. 164, you advocated in an editorial that only trade names of materials the contractor specifically mentions in his bid would be considered.

We thoroughly agree with you that there is room for improvement in the writing of specifications, but believe that the policy you recommend is impractical. At the time of the bid, the contractor does not have time to mention various items he has found from experience to be trustworthy.

Furthermore, erection of a construction project is so filled with many important but relatively small items that if everyone of these had to be mentioned by the contractor at the time of bidding, all bids would become an extremely complicated document and hardship would be worked on the contractor.

It goes without saying that no one specification writer, by the very nature of things, can be expected to know the best material or method for every condition of a job.

To use the method of specifications you advocate would be the fastest imaginable way of stifling competition and raising cost to the owner.

MATTHEW SPIESMAN
Concrete Service Co.
Philadelphia, Pa.

Plant Fabrication Preferred

SIR—I just read your article "On-Site Prestressing Plant Cuts Costs" (ENR April 18, p. 58). It is an excellent example of the economy and flexibility in building construction that can be attained by the use of prestressed concrete. However, I do not think that on-site prestressing is often cheaper or better than plant-produced products.

Generally speaking, prestressed concrete units should be produced in a reputable plant that has personnel with experience and skill to handle the job. In fact, it is one of the advantages of prestressing and precasting that they have to be done at centralized locations. Hence, I do not want your readers to be misled into the belief that prestressing and precasting should be done at the site as a rule.

The success of the General Electric Building as described in your article indicated very well the various possibilities yet open in the field of prestressing. I am further aware of other new methods of production and automation that are being applied to prestressed concrete, both in this country and abroad. Engineers and builders should keep open both their mind and their eyes concerning the development of this new type of construction.

T. Y. LIN
Professor of Civil Engineering
University of California
Berkeley, California

Wind Standard Unimproved

SIR—I believe that the standard referred to in the article, "New Standard Wind-Load Requirements" (ENR Feb. 14, p. 33) is not an improvement over previously published literature on the subject, with one exception: I agree with the concept of a variable "gust factor", but prefer that it be considered a function of wind velocity rather than a function of height above ground.

What the designer needs to establish wind loads are data as follows: (a) maximum wind velocities; (b) gust factors (as a ratio of gust velocity to maximum velocity); (c) the basic velocity-pressure formula $p = 0.0036V^2$; (d) the variation in velocity with height $V_s = V_{20}\,(h/30)^{1/7}$; (e) A chart of "distribution factors" (shape factors), for elemental portions of the various types of structures commonly encountered in design.

The reasons are: 1. The client wants to know the wind velocity his structure is designed for. The architect or engineer can work backwards from the ASA standard to get the answer to this question if he has not already done so, but it is certainly better not to be embarrassed by the client's question, and therefore to start with first things first and go on from there, step by step until the actual wind loads and their application (distribution) have been determined. 2. The time consumed by use of slide rule, log book or calculating machine is negligible, once the data and design formula, charts and graphs necessary are available or known.

I would like to suggest therefore that the ASA standard be revised again, substituting for the map of wind pressures

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance.

Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

3 Differences that aren't in the policy

All Workmen's Compensation and Public Liability policies read pretty much alike. The difference shows up on the job.

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In these days of close profit margins and greater risks, these differences are well worth considering. Call your Travelers agent or broker for full details.

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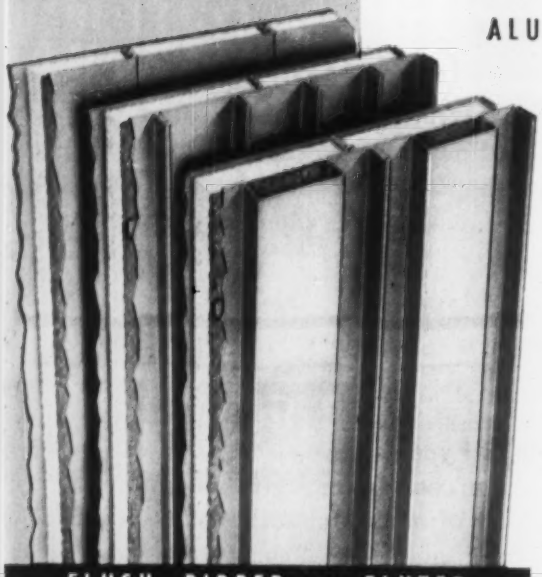

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In recent years, progressive architects have employed this versatile product skillfully and to good advantage, costwise, in producing some outstanding exterior design effects in office buildings, schools, nightclubs, armories, sports arenas, technical and research centers, parking garages, and, in some important monumental buildings. Bright metal—aluminum or stainless steel—in combination with brick, ornamental stone, glass block, or other materials, offers unlimited possibilities in architectural treatment of exterior design. The building below is an excellent example. Mahon Insulated Metal Curtain Walls are light weight, permanent construction . . . erection is fast under any temperature condition. They are economical, too . . . savings amount to as much as 50% of the cost of masonry walls in some types of buildings. Mahon Insulated Metal Curtain Walls are available in patterns shown at left. In the "Fluted Wall" and the "Ribbed Wall", vertical joints are invisible—symmetry of pattern is uninterrupted across the wall surface . . . and, both of these walls can be erected up to sixty feet in height without a horizontal joint. These two design features, which are vitally important from an appearance standpoint, were engineered into Mahon Walls to give you a finer appearing job free from unsightly joints. You'll want to investigate these Mahon "better look" features before you select a Metal Curtain Wall for your next building. See Sweet's Files for information, or write for Catalogue W-57.

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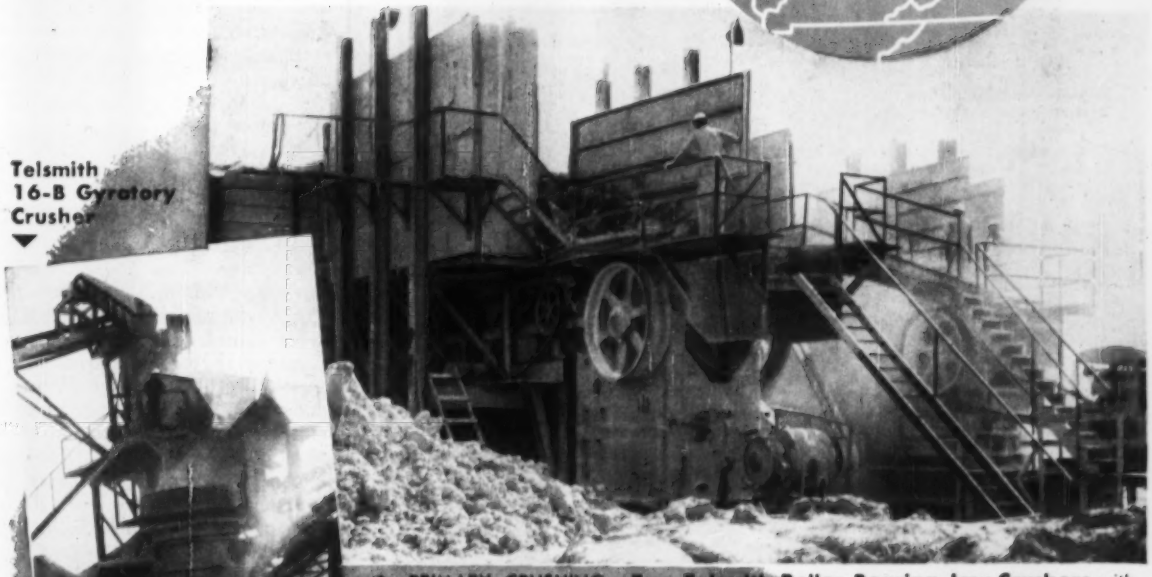
Modern Office Building for The Kansas City Southern Ry. Co., Shreveport, Louisiana. Neild-Somdal Associates, Architects. Southern Builders, Inc., General Contractors. In this Office Building, the Architects have combined Brick, Limestone and Embossed Aluminum in the exterior design to achieve the desired effect.

MAHON

TELSMITH

produces aggregate for the

ST. LAWRENCE SEAWAY



Telsmith 16-B Gyratory Crusher ▼

▲ PRIMARY CRUSHING—**Two Telsmith Roller Bearing Jaw Crushers** with **two Telsmith Heavy Duty Apron Feeders**—a 42 x 48 crusher with a 48" wide feeder, and a 30 x 42 crusher with a 42" wide feeder.

Three Telsmith 5' x 12' Double Deck Vibro-King Sizing Screens ▼

● In Helena, New York, near Massena, this Lambert-Mills-Gorman plant is supplying aggregate for the Robinson Bay and Grass River Locks. Plant produces about 8,000 to 10,000 tons per day, of four sizes: minus 6" plus 3", minus 3" plus 1½", minus 1½" plus ¾", minus ¾" plus 4 mesh and manufactured sand. Primary crushing is efficiently handled by Telsmith 42 x 48 and 30 x 42 Jaw Crushers. Their product is scalped—plus 6" going to a 16-B Telsmith Gyratory Crusher; and minus 3" to a surge pile, then to three Telsmith double deck Vibro-King Screens.

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Q-35

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a map of wind velocities at a height of 30 ft above ground, exclusive of "gust factors", "shape factors", etc., supplementing this by a graph of gust factors, a graph of the 1/7th power-height factor, and the chart of "distribution factors" (shape factors) previously mentioned.

With such data the wind loading can then be quickly determined for the elemental area under consideration by means of the formula

$$p = 0.0026 A f_s (V f_h f_g)^2$$

where p is the design wind load in psf, A the projected area of surface exposed to wind in square feet, V the maximum wind velocity at height 30 ft above ground in mph (from map), f_h the height factor (from a graph), f_g the gust factor (from a graph), and f_s the distribution or shape factor (from a chart).

The ASA standard should also consider the effect of internal positive or negative pressures on partly closed or partly open structures, and on overhanging eaves, gables and parapet walls.

Other considerations of such items as character of terrain, and the influence of adjacent structures of various shapes and sizes, should eventually be included in the ultimate revision of the standard.

Further, there appears to be an improper definition of the aerodynamic term "aspect ratio", which to the aeronautical engineer means "ratio of span to mean chord of an airfoil". This definition if applied to a building, for example, would mean "length divided by mean breadth", not length divided by height, and any factor related to this aspect ratio would be applicable to the roof, not the side wall, of the building.

The objective of ASA to make this standard understandable is a worthy one. The 1955 revision of ASA 58.1 appears to have been intended to avoid the misunderstandings that arose from interpretation of the 1945 standard, but in my opinion has fallen short of the goal and is more confusing than before.

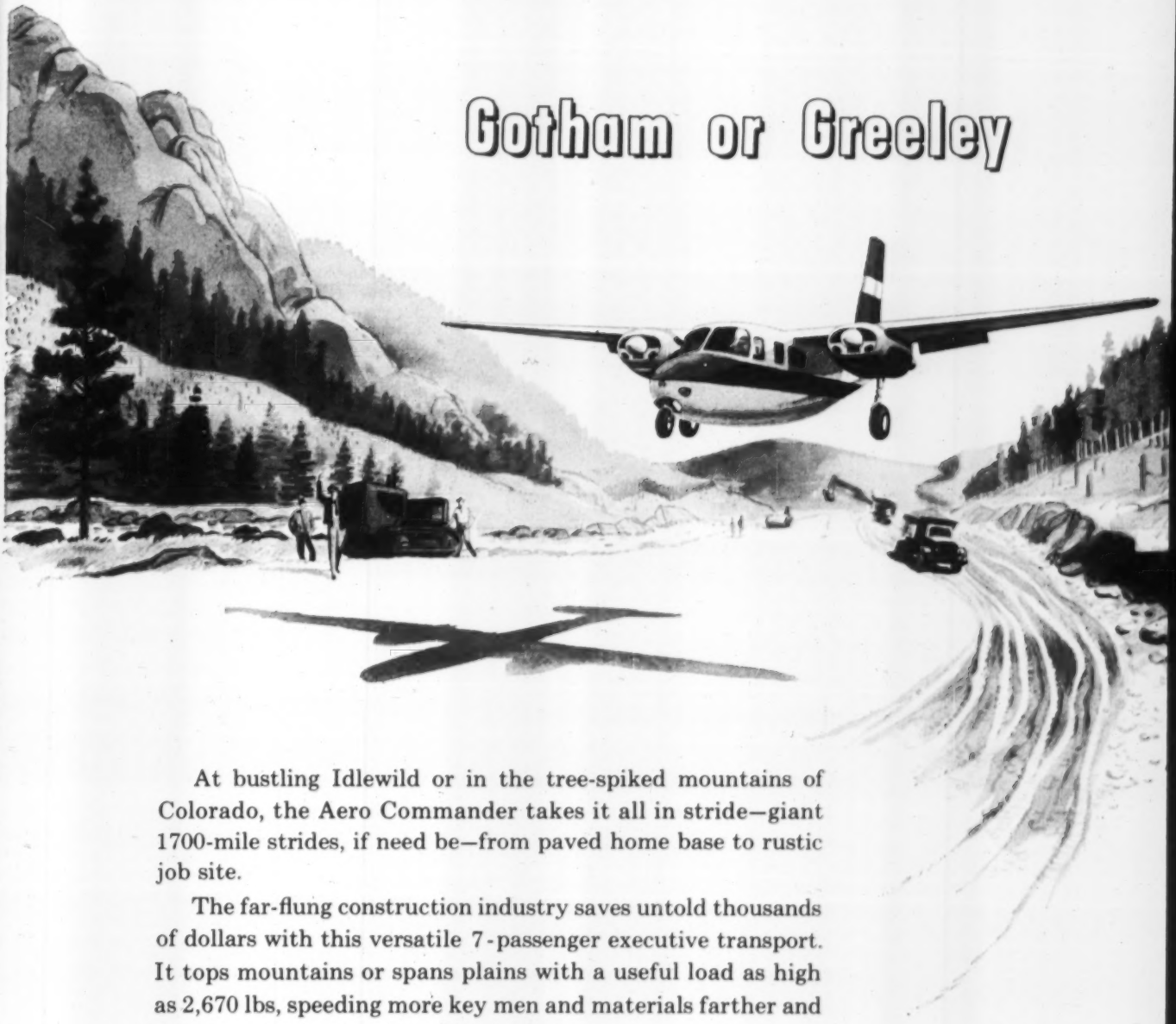
GEORGE N. HYLAND
Wilmington, Del.

EDITOR'S NOTE—Following is the author's reply to Mr. Hyland's criticism:

Thompson's Reply

SIR—The manner of presentation of wind loads in A58.1-1955 was discussed at some length by the working committee responsible for the revision. It was felt that A58.1-1945, as a standard recognized nationally, had shortcomings with respect to wind-load require-

Gotham or Greeley



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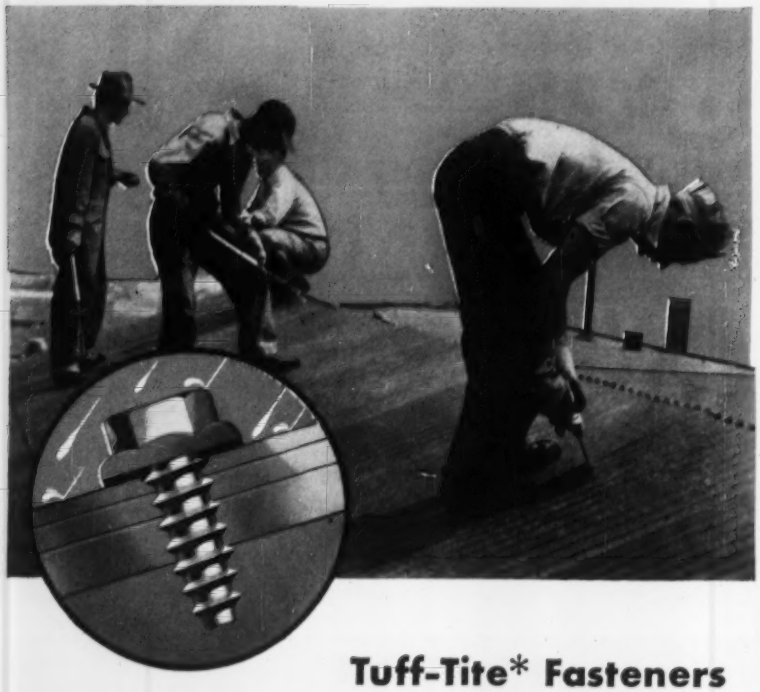

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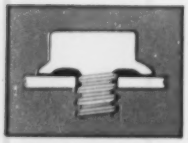

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ments that caused frequent misunderstanding.

For example, it was found that the table in Section 5.1 (1945) was frequently being referred to for wind loading for any area in the country. The map in A58.1-1955, now in the standard rather than in the appendix, should do much to eliminate this problem. We also found that in some of the cases where wind loading was calculated from raw information, and in accordance with the 1945 appendix, the gust factor was not squared as it should have been.

These are a few examples of reasons leading to the wind-loading presentation in the 1955 revision. With the new map and the accompanying table of design wind pressures for rectangular buildings, it is a simple matter to obtain the proper value for any location in the country and for any height. For structures other than rectangular buildings, it is necessary only to apply the designated factors to the values taken from the map and table.

It would perhaps be a very good idea, in the next revision, to indicate in table 3 the wind speeds from which the design pressures are obtained. I would like to comment here that the U. S. Weather Bureau has indicated that wind pressures based on the fastest-single-mile wind speed, rather than on the 5-min average as in the 1945 edition are much more representative of the pressures actually experienced.

Reference to the aspect ratio is made only in regard to the effect on trussed towers, whose members are generally long and slender and have a high aspect ratio. The aspect ratio is not associated with the application of wind loads to low rectangular buildings.

Mr. Hyland's letter is being filed with others we have received giving comments on A58.1-1955. During the course of working on the next revision, all of these will be studied and given consideration.

JAMES P. THOMPSON
Secretary, ASA Sectional Committee A58
Washington, D. C.

CALENDAR

Annual Meeting of American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 16-21.

Wire Reinforcement Institute, Inc., annual spring meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., June 24-25.

Concrete Reinforcing Steel Institute, annual meeting, The Greenbrier, White Sulphur Springs, W. Va., June 24-29.

World Conference on Prestressed Concrete, Fairmont Hotel, San Francisco, Calif., July 29-August 2.

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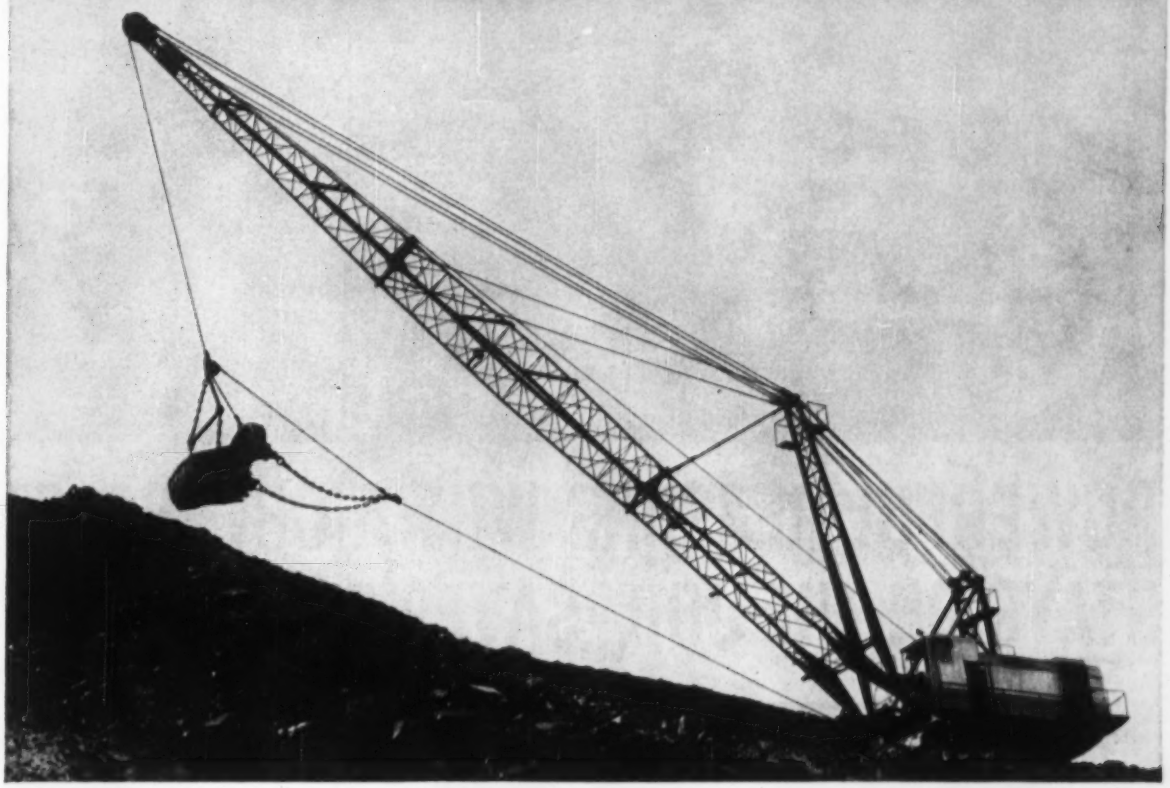

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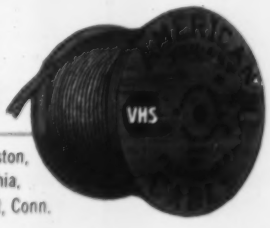

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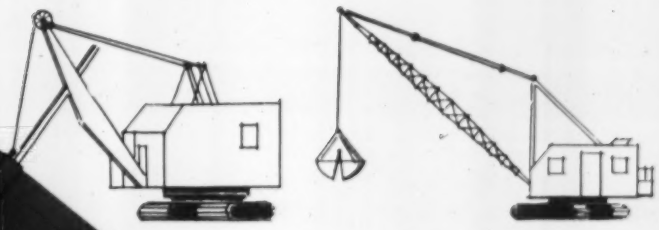

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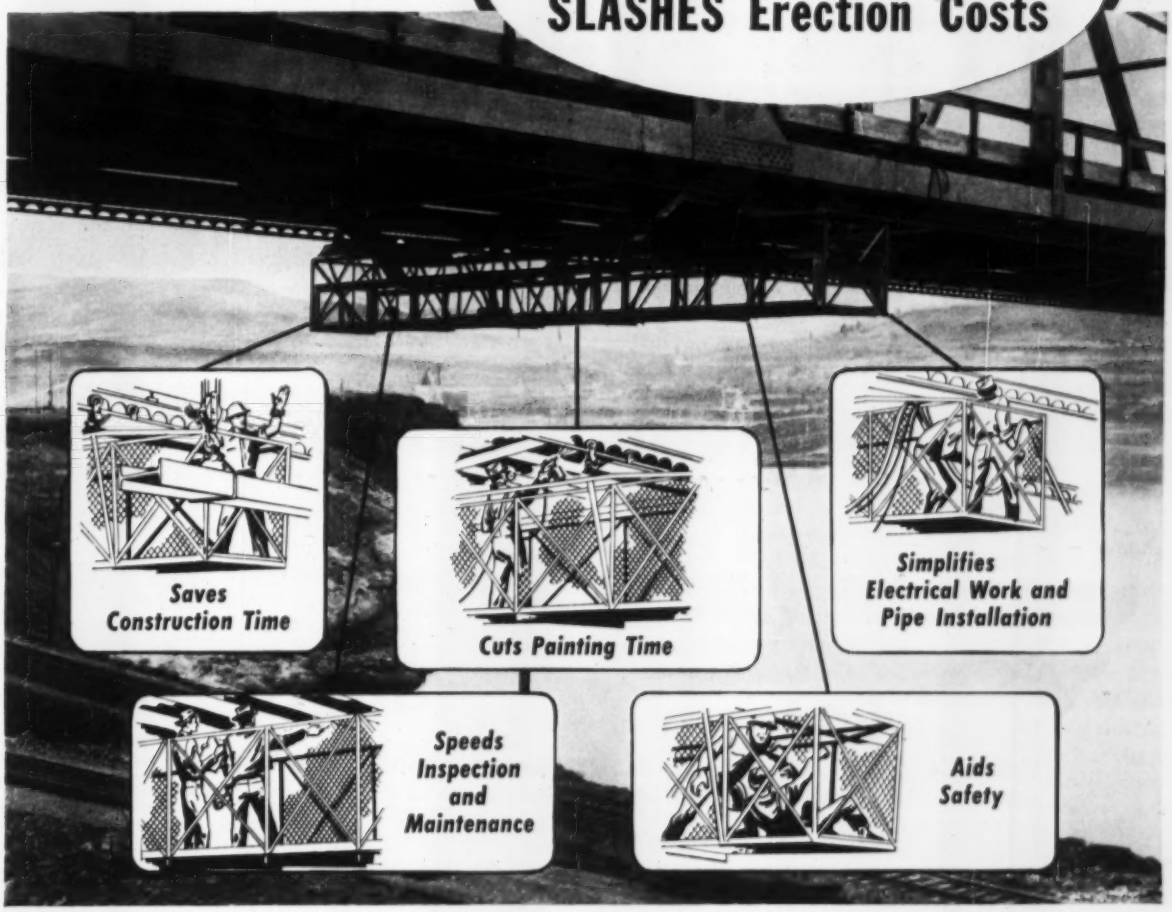
Illustrated is one of six Cleveland Tramrail Travelers on the Dalles Bridge over the Columbia River. Traveler length is 37'-6". Operation is by handwheel drive. Complete fence enclosure assures maximum safety.

TRAMRAIL Bridge Traveler SLASHES Erection Costs



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Advantages that the equipment provides for erection work alone usually justify its installation by a bridge contractor — even if not called for in the specifications. Time saved in many phases of bridge construction makes the equipment profitable. The savings do not stop with the completion of a bridge. They continue year after year by reducing man-hours required for inspection, painting and miscellaneous servicing work.

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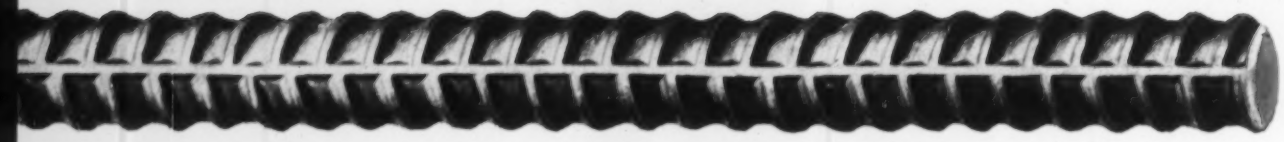

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ENGINEERING NEWS-RECORD

Vol. 158, No. 24 June 13, 1957

Number of copies printed this issue: 77,887

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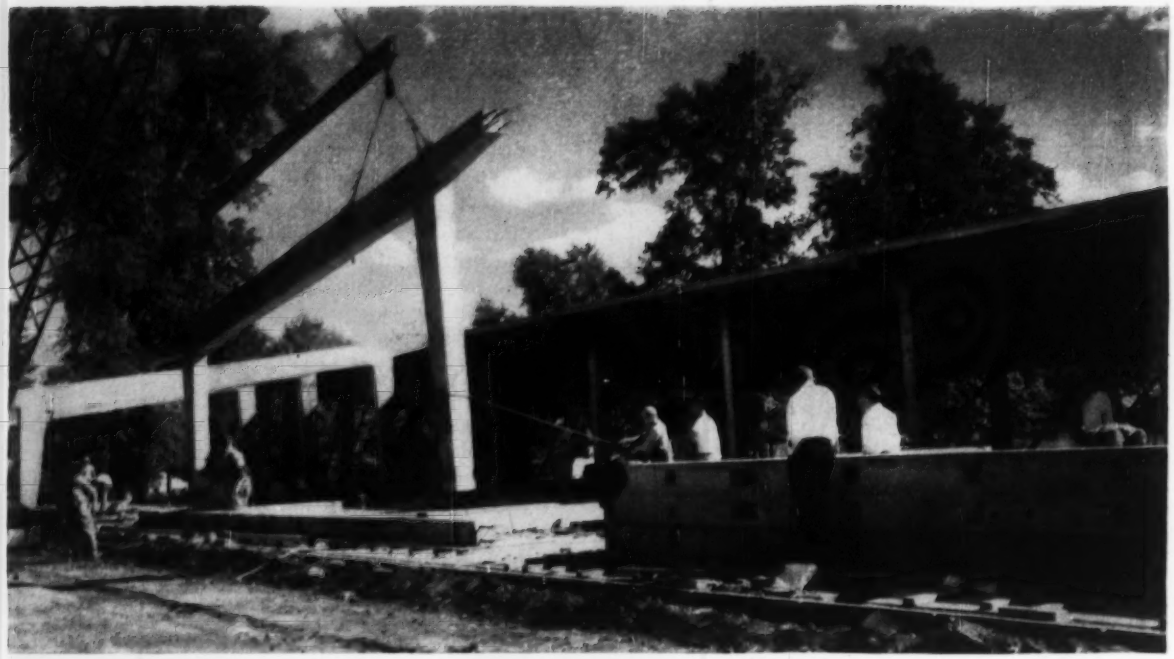
THE CONSTRUCTION WEEK

GREEN LUMBER STILL IN THE PICTURE—Word has leaked out from a closed hearing held in Washington, D. C., that the American Lumber Standards Committee has voted down changes in lumber standards that would have limited moisture content in lumber. Charles A. Bowser, Assistant Commissioner of Technical Standards of the Federal Housing Administration, had written the committee that his agency had received numerous complaints from field-insuring offices regarding 2 in. lumber that was considerably under required size because of shrinkage. "The complaints apply chiefly to lumber graded under the rules of the West Coast Lumbermen's Association, which—unlike the grading rules of other associations—permits lumber to be surfaced and shipped when it is green," he says. The committee vote was reported divided along a sharp geographic line, with the West voting to ignore moisture content in specifications and the South teaming up with engineers to tighten the standards.

IT WAS YOUNG ENGINEERS' WEEK—While the American Society of Civil Engineers, meeting in Buffalo, discussed its younger members (see p. 25), the National Society of Professional Engineers, meeting in Dallas, made development of the young engineer its entire theme. But NSPE's emphasis on developing the younger man may have come out of an admission that "a real weakness of our society is in the low percentage of members in the lower age brackets." ASCE's discussors, on the other hand, surveyed the status of the predominant membership grade of their organization—Junior Members make up 45% of its total.

"DAMN THE TORPEDOES"—Officials of the Commerce Oil Refining Corp. may be using Admiral Farragut's words these days, but the last part of the quote won't be heard unless the Corps of Engineers approves their construction project. Commerce plans to build at Conanicut Island, R. I., a 1,300 ft, $1.3 million tanker unloading pier designed with offshore nets to catch torpedoes that might go astray from the Navy's Gould Island Test Station nearby. The pier, which would serve a $48 million refinery (also planned), has been opposed because of possible interference with the Navy's activities.

CALIFORNIA HIRES CONSULTANT FIRMS—A crack has appeared in the barrier the State of California maintains against hiring of private engineering firms. State Director of Public Works, Frank B. Durkee, has engaged several electrical consulting engineers for services on five California projects being planned by the state's Division of Architecture. He explains, "In spite of efforts to recruit technical personnel through state civil service procedures, the shortage of such employees to meet the state's need is growing more acute."



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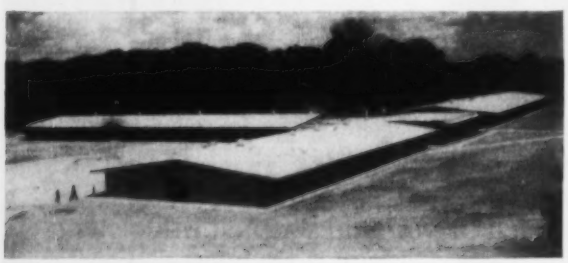

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WASHINGTON OBSERVER

- Squabble over statistics warms up
- Small project borrowers get in line
- Lease-purchase outlook improves
- Delay forecast in road test

● **The squabble over who is to handle construction statistics is flaring up all over again.** The issue has been around for years: Both the Department of Commerce and Department of Labor each have statistical series that are important to the industry. Labor has the housing figures and those on federal construction; Commerce has all private construction except residential.

Now the Budget Bureau is ordering Commerce to turn over to Labor the responsibility and the 17 jobs that go with the Commerce statistical workload. Budget Bureau chief Brundage has written letters to Secretaries Weeks and Mitchell for the transfer to take place effective a year from now. Reason: administrative efficiency.

Labor already has the largest construction statistics operation with some 39 staffers, plus part-time people in the field.

● **Local irrigation districts are lining up for small project loans** now that President Eisenhower has signed the amendments he said he had to have before putting the law into effect.

The law provides for interest-free federal loans up to $5 million for projects costing no more than $10 million. The idea is to encourage local agencies to handle such construction—perhaps at a saving.

First loan fund probably will be $100 million but there's a question whether Congress will vote it before next year.

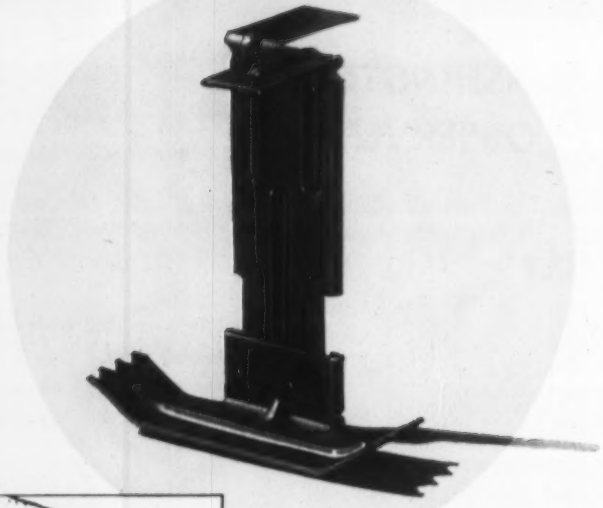
● **Chances for new lease-purchase legislation are brighter** with the introduction of a bill this week by members of the Senate Public Works Committee. The proposal is being worked up with the hope of giving the $700 million construction program another chance.

The amendments would allow General Services Administration more freedom to accept bids that run the cost of a particular building as much as 7% higher than the ceiling approved by the Congressional committees.

GSA has 39 buildings worth $71 million it will advertise for bids by the year's end. But before it goes ahead, it will wait to see whether the new legislation can be passed in the next month or so.

● **Rejection of the only bid for construction of the new test road near Ottawa, Ill., will delay a report to Congress on allocating highway costs.** Submitted by S. J. Groves Sons, Inc., the $6,622,514 bid exceeded the funds available, and was rejected by the Illinois Division of Highways, acting as agent for the sponsors—the Federal Bureau of Public Roads, the Highway Research Board, and others. Result, new advertisements will split the 9 mile road into several phases, so that at least some of the work can be completed this year. The test road is planned to provide data on which BPR can base recommendations for permissible truck weights and sizes for new highways, and allocation of truck taxes.

GAT® Dek-Clips



PROVEN NON-PIERCING MECHANICAL FASTENERS FOR ATTACHMENT OF INSULATION TO METAL ROOF DECK

(PATENT PENDING)

GAT Dek-Clips were originally developed through creative research at Geo. A. Tinnerman's Dominion Fasteners, Ltd., Canadian plant, and then tested and approved by accredited laboratories in the United States and Canada.

Since early 1956 there have been more than 1,500,000 sq. ft. of insulation secured with GAT Dek-Clips under all extremes of weather conditions.

This system of fastening provides a first class vapor barrier without insurance penalties. And there is no need for costly membranes.

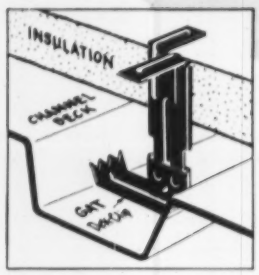
MAJOR REDUCTION IN ANCHORING TIME

With minimum briefing, construction crews anchor insulation on metal channel deck for built-up roof systems in less time than presently required with adhesive method. Safe, too! . . . no sharp tangs, spikes or protrusions.

GAT Dek-Clips ENDURE HURRICANE VELOCITY WINDS WITH SAFETY FACTOR OF 2.

GAT Dek-Clips HAVE BEEN INSTALLED AND USED EVEN IN INHOSPITABLE ARCTIC WASTELANDS.

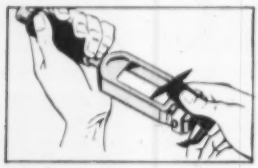
GAT Dek-Clips USED AS A COMPONENT OF STEEL DECK CONSTRUCTION GRANTED A CLASS 1 INSURANCE RATING.



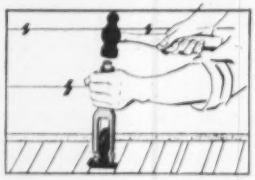
GAT Dek-Clips Anchoring Principle

The sharp serrated teeth at each end of the foot element grip the sides of the deck flute when the clip is seated. As the load increases, the holding power increases since GAT Dek-Clips are made of high-tensile heat-treated alloy steel.

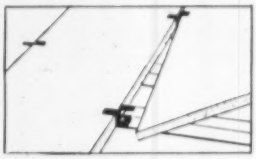
EASY AS A-B-C!



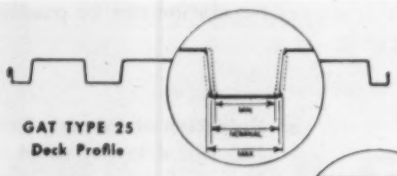
A Fastener is snapped into GAT Dek-Tool (from either side of tool) as shown.



B Tool with clip is placed vertically against edge of insulation and driven into deck flute with a couple of hammer blows to securely seat the fastener—resists over 200 lbs. pull-out.



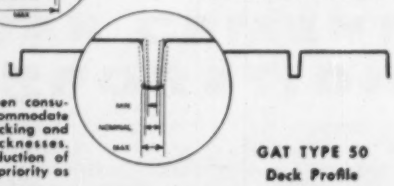
C Next insulation board is butted against the anchored board so that edge is snug against upright leg of fastener. Opposing tabs act as a common anchor for both boards.



GAT TYPE 25 Deck Profile

SIZES?

To properly select GAT Dek-Clips for various types of roof deck channel sections, use this Dek-Limit Chart:



GAT TYPE 50 Deck Profile

Engineering development has been consummated on GAT Dek-Clips to accommodate virtually all types of channel decking and a wide range of insulation thicknesses. Scheduling of commercial production of these various types will be given priority as the demand requires.

DETAILED DEK-LIMIT CHART UPON REQUEST

To get started with GAT Dek-Clips send for specification sheet. Clip this trademark, staple it to your company letterhead, sign your name, and mail to the Geo. A. Tinnerman corporation.

GAT

GEO. A. TINNERMAN corporation 19930 Detroit Road • Cleveland 16, Ohio

Now concentrating our research and development on mechanical fasteners for building products.

At Buffalo Convention

- **Howson is nominated for presidency of American Society of Civil Engineers**
- **Sweeping change in membership grades proposed for constitutional amendment**
- **St. Lawrence Seaway and Power Project dominates technical session programs**

ASCE Hears Seaway Story Told—In Part

The American Society of Civil Engineers convened in Buffalo last week to hear all about design and construction of the St. Lawrence Seaway and Power Project. It heard about design with construction barely mentioned.

But the one-day post-convention tour to the work made it possible for the 250 who went to see that construction problems still abound—despite their possible impression from the score or more of papers they had heard that the engineering was about done with most problems successfully solved.

By the tone of the convention papers, engineering of the St. Lawrence projects was described as a success from surveying to electrical design. Only the Construction Division of the Society was conspicuous by its absence from the program.

While the technical sessions went on, the Board of Direction of the Society finished up an especially hectic two-day meeting with actions of prime professional concern.

In its most significant actions, the board:

• Went on record as "completely opposed" to the much-discussed anti-pirating clause governing engineering employment on the multi-billion interstate highway program.

• Strongly supported a measure now before Congress that would have the effect of substantially raising engineering salaries, through revisions of pay and grade structures in the federal civil service.

• Received and made public the details of a task committee report that would change the status of every member of the society.

• **Anti anti-pirating**—During the meetings in an interview with ENR, Bertram D. Tallamy, Federal Highway Administrator, declared that the Bureau of Public Roads no longer approves the clause on engineering hiring.

The offending statement (ENR May 2, p. 132) restricts the hiring of "any professional or technical personnel . . . in the employ of the Bureau of Public Roads or the highway organization of any state, county or city . . . without the written consent of the public employer." It has been immediately and effectively opposed by individual engineers and several organizations as an unwarranted restriction of personal and professional liberties.

The Congressional action endorsed is the Moss-Gubser Bill, which would create a new civil service classification for scientific and professional personnel. It would create a new set of grades—to be known as SPS 1 through 14—which would correspond to the existing GS 5 to 18. But salaries recommended for the SPS series would be considerably higher than for the GS grades: Pay would range from $5,070 to $19,000 yearly.

• **Membership changes**—Probably of greatest professional interest to all members, however, was the task committee report concerning membership classifications.

In brief, the committee recommended:

• Elimination of the grade of Junior Member, with men qualifying for that present grade now to be called Associate Member.

• Present Associate Members to become Members.

• Men now qualifying as Members, to become Senior Members.

• Creation of a new Affiliate grade—without voting rights—for those in engineering work, such as sales, where responsibilities might not qualify them for other new grades above Associate. The present few Affiliates will be absorbed into other grades.

A time limit—rather than an age limit—would be put on the lowest (Associate) grade, and on its lower dues. The time limit would be 12 years from the date of graduation; the limit on the payment of lower dues would be seven years.

Three years of responsible charge of work (instead of the present one year) would be required for advancement to the new Member grade; and an additional five years (for a total of eight), plus a professional engineer's license and age 40, would be the requirement for Senior Member.

Devised to upgrade everyone in ASCE, the scheme will be presented by the board to the membership for study and comment. It could not come up as an amendment to the society's constitution for at least another year.

Last of the most important Society actions was nomination of Louis R. Howson, senior partner of Alvord, Burdick & Howson Chicago as next ASCE president. He would be inaugurated at the society's fall meeting.

• **Professional viewpoint**—Turning to other problems of the profession, President Mason G. Lockwood devoted his annual address to the thesis that pressures to produce work, and competition, are annihilating creative thinking.

"Competition itself is good," commented Mr. Lockwood, but he sees some effects of competition as being harmful.

Firms and individuals, obliged to compete on a price basis these days,

. . . ASCE hears Seaway story told—in part

must provide in their charges solely for applied engineering—with no time for creative thinking figured in. Competition and shortage of engineers are conspiring to make a mechanical science of a creative art, concluded Mr. Lockwood.

He urged his listeners to "recapture contemplative minutes" out of their working and leisure hours, and admonished engineering management not to suppress creativity by allowing their employees no time to think.

On a subject closely related both to the need for creative work in engineering and to the pressure for changes in membership classifications, W. H. Wisely, ASCE Executive Secretary, reported to the society's Department of Conditions of Practice on a statistical study of the younger engineers in the organization.

According to Mr. Wisely, figures show these young men coming into the Society in good proportions from the colleges. However, he said, their participation in society affairs while they are in the Junior grade is far less than their numbers (45% of total membership) might indicate. Additionally, too many fail to transfer in grade when they reach the age limits.

Remedies for this situation, said Mr. Wisely, should include better orientation, indoctrination, higher pay, opportunities to participate, and encouragement from employers.

But he concluded that his statistics indicate the "so-called Junior Member problem" is not nearly so serious as it has been pictured.

• **Technical problems**—The technical division meetings tackled engineering problems of the St. Lawrence project—and found almost all of them just about solved.

Only speaker coming to grips with the construction problem was Richard E. Burnett, of Uhl, Hall & Rich, engineers for the Power Authority of the State of New York. Mr. Burnett described the excavation problem in the dense till and treacherous clay of the St. Lawrence Valley—a problem tackled to date by 135 shovels and draglines (ranging from ¾ to 15 cu yd), 400 crawler tractors, 85 scrapers, 730 trucks (up to 25 cu yd) and 8 dredges.

He concluded that 2½ to 6 cu yd shovels were the most effective where trucks could travel on their level. Big walking draglines were better than shovels in excavating dense, unblasted glacial tills. Scrapers up to 23 cu yd were best at stripping topsoil and rehandling material. Each type of land-based equipment has had its place, concluded Mr. Burnett. (See page 31 for a discussion of St. Lawrence excavation costs.)

LOUIS R. HOWSON, official nominee for ASCE's presidency, is senior partner of Alvord, Burdick & Howson, Chicago consulting firm prominent in water supply and sewage disposal engineering work.

Speaking of soil problems on the Long Sault Canal, Harris H. Burke, of the Bechtel Corp., but formerly with the Corps of Engineers, called Seaway excavation "every bit as difficult as had been anticipated." He credited successful solution of soils problems as contributing to completion of a mighty waterway.

• **Thruway also feature**—Biggest competition for the Seaway on the technical program at Buffalo was the New York State Thruway and the $4.5 billion worth of highways the state will build over the next 12 years.

C. H. Lang, the Thruway Authority's chief engineer, credited use of consultants (and he calls the state's Department of Public Works his agency's overall consultant) as a most successful arrangement in New York.

Discussing contractual arrangements with consultants, he cited certain injustices that can develop in present practices: Fees on mapping may have to be varied from urban to rural areas; 3½% of estimated construction costs for design does not mean the same thing in $10 per cu yd rock excavation as it does in $1 per yard earth excavation, although the engineering involved is no greater; 4½% of final cost of the contract for supervision of construction must be augmented by some formula if contract time extends beyond that scheduled.

John W. Johnson, who as Superintendent of Public Works is the Thruway's prime consultant and the state's highway engineer, reported $1.1 billion worth of roads on his drawing boards right now. He expressed relief over New York Governor Harriman's recent veto of legislation to permit use of highway funds for utilities relocation. Stating that if the country adopted a policy of using highway funds for this purpose, he'd be for it, too, Mr. Johnson pointed out that a predominance of the state legislatures appeared to be against it.

• **Consultant's role**—Elmer B. Isaak of Madigan & Hyland, New York, described the role of the consulting engineer in the federal highway program, giving it monetary measure with a figure of 8% of the total engineering costs for $50 billion worth of highways to be built over 13 (or 16) years. As another measure, he said 700,000 sheets of contract drawings will go into the 41,000 mile system, "and the state highway departments can't do it alone." A partnership must be developed to bring the program to satisfactory completion.

Similarly, but prior to President Lockwood's urging, Mr. Isaak called on consultants in this great highway effort to assume a "really professional role" and keep "thinking progressively" rather than falling into routine output.

California's Prof. Harmer E. Davis briefed a paper by E. A. Abund-Nur of Denver on materials quality control in highway work. Professor Davis predicts for construction a modification of the production control that is so complete and concise in manufacturing and suggests that a new breed of technician-inspectors be developed.

In a well attended session of the Structural Division, folded-plate roof design was explained by Prof. Harvard Simpson of Massachusetts Institute of Technology, and Prof. R. B. Moorman of Syracuse University described test work on scaled-down folded-plate concrete structures. Test results have been found to be happily in accord with the theory.

The Structural Division took a short field trip to Buffalo's Bethlehem Steel plant; the Highway Division saw some Thruway construction; the Power Division visited Niagara remedial works and Ontario Hydro's Sir Adam Beck plant on the Niagara River. All were preliminary to the St. Lawrence excursion, which was for those who went easily the outstanding feature of the convention.

One day is not nearly enough time for an engineer when it comes to seeing this vast complex of power and navigation construction, but a guided tour run as well as this one was is enough to impress a visitor mightily with what's there—especially at the project's present stage.

Bid Price Very Low

Prestressed bridge bid at $6.09 per square foot

The Florida State Road Department received unusually low bid prices for a three mile long bridge over Old Tampa Bay—largest single project yet bid under the interstate highway program. Cost of a major portion of the bridge, which is being constructed with prestressed, precast concrete beams, averages $365.72 per lin ft, or $6.09 per sq ft for the 60 ft width between handrails.

Hardaway Contracting Co., Columbus, Ga., was the low bidder. This firm also was the contractor for several similar nearby projects—the new Gandy Bridge over Old Tampa Bay and the trestle spans on the Sunshine Skyway over lower Tampa Bay.

The new bridge is the central unit in a seven-mile crossing between Tampa and St. Petersburg. About four miles will be on dredge-filled causeways, which will be built under a separate contract.

Most of the superstructure will consist of 286 trestle spans of 48 ft length—the portion bid at $6.09 per sq ft. The channel span is 98 ft long and has a vertical clearance of at least 45 ft above mean high water. On each side of this span are fourteen 66 ft spans. Also included in the contract are six 33 ft reinforced concrete flat slabs.

The $6.09 price for the 48 ft spans includes $2.31 for the substructure. The foundations require unusually long piles, and driving is expected to be severe. Average length for the 24 in. square piles to be used is estimated at 75 ft.

Details of the bridge and a breakdown of the costs will be published in ENR's Annual Costs Issue Oct. 17.

Delayed Opening Date Set For New Orleans Tunnel

Target date for completion of a $5 million 1,080 ft highway tunnel under the Harvey Canal—a section of the Gulf Intercoastal Waterway, west of New Orleans—has been set for July 15, some 18 months behind the original schedule.

The 4 lane, twin-tube tunnel, part of the new West Bank Expressway, was planned for completion in December 1955. Progress was delayed when workmen struck unexpected soil conditions as well as encountered coffer dam difficulties.

Opening of the tunnel will eliminate a major traffic bottleneck caused by a drawbridge over the busy canal.

Cofferdam Break Leads to Dam Failure . . .

Stoplogs in the sluiceways of 73-year-old Leech Lake Dam in northern Minnesota were torn loose from their supporting abutments June 4 causing a 1 ft drop in the operating pool behind the dam in the first 24 hours. The onrushing water raised the river level below the dam from 6 to 7 ft, inundating some marsh land and flooding basements of a few houses. No extensive flood damage occurred.

The dam failure was caused by the failure of a sheetpile cofferdam driven in 15 ft of water on the upstream side along 100 ft of the 448 ft long concrete portion of Leech Lake Dam. Dewatered the afternoon of failure, the cofferdam had been driven by the Lakehead Construction Co., Superior, Wis., to facilitate repairs to a timber apron on the downstream side.

As the cofferdam gave way and water surged into the dewartered area, apparently the water's impact against the stoplogs tore them loose. No one actually saw the cofferdam failure and just what part of the cofferdam gave way was not immediately ascertainable.

To repair the damage, the contractor is enclosing the original cofferdam with a second cofferdam which will permit dewatering of the entire area. This phase is expected to be completed by June 17, during which time the Corps of Engineers calculates the lake will drop less than ½ in. per day. Although operating pool dropped 1 ft in the first 24 hr, this meant a drop of ½ in. over the entire lake level.

Leech Lake Dam, constructed in 1884 and reconstructed in 1902, is operated by the St. Paul District of the Army Engineers to supply navigation water to the Mississippi River by way of Leech Lake River and as a recreational reservoir.

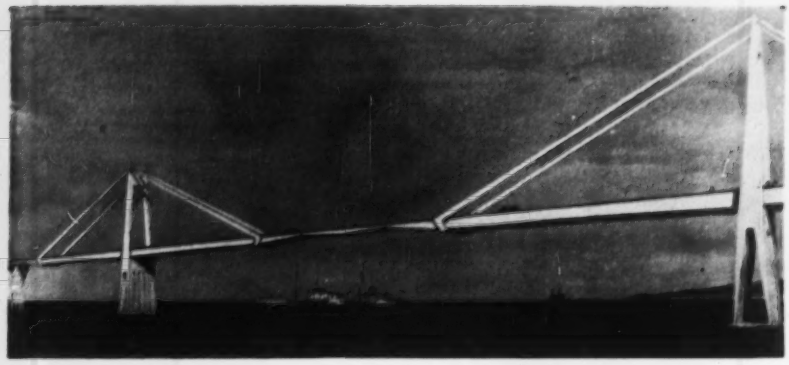
Nine of 28 sluiceways operated by stoplogs to control lake level are in the damaged area. Normal pool elevation is 1,296 ft; the timber apron which was under repair is at El 1281. A roadway across the top of the dam has been closed.

. . . And Barge Rams Dam; Dam Loses

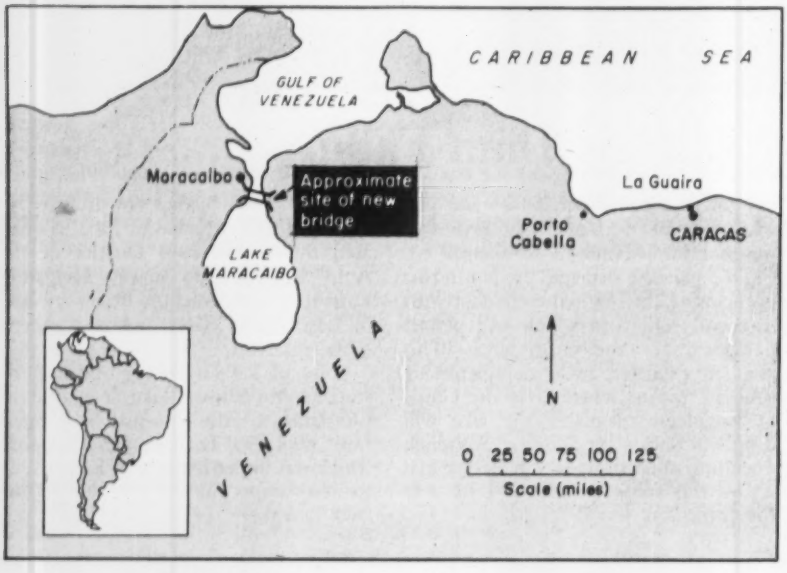
A barge loaded with 1,000 tons of coke broke loose from its landing two miles upstream and crushed one-third of its 195 ft length through the wickets of Ohio River Lock and Dam 29 at Ashland, Ky., last week.

After a derrick pulled the barge loose, Corps of Engineers crews were successful in repairing 13 battered gates to get the dam back in commission by week's end. The wicket gates are 16½ ft high and 4 ft wide, fixed side by side across the river atop the concrete.

Insufficient water level while the gates were down prevented passage of navigation traffic through the locks.



This Design Beat U. S. Firms . . .



. . . Bidding for Venezuelan Job

One of the world's longest high-level bridges—including a 1,312 ft central suspension span of radically different design—will be built across the mouth of Venezuela's oil-rich Lake Maracaibo. A $98.9 million design and construction contract for it was awarded to a Venezuelan-German combine last week.

The successful bidder was actually fourth lowest of the nine firms that submitted proposals for the work.

Feature of the five mile structure will be the central span. It will consist of two prestressed concrete cantilevers suspended from concrete-encased steel cables and supporting on their ends a closing span 230 ft long. The structure will carry both a highway and a railroad across the lake mouth.

The winning bid, submitted by Precomprimido C. A. of Caracas and Julius Berger A. G. of Germany, was more than $14 million higher than the low bid of $84 million, submitted by a combine that included two U. S. contractors—C. A. DeLong de Venezuela, and Massman Construction Co. of Kansas City.

Circumstances surrounding the rejection of the low bid caused so much comment that one Caracas English-language daily devoted a full page of a recent Sunday edition to government explanations. Principal government reasons, as cited by the newspaper included:

The government's desire for a more "imposing" structure than the long-span steel cantilever on which the DeLong-Massman bid was based; the claimed higher maintenance cost of the steel central spans; the statement that the low-bid combine had been asked to submit new figures on a different design, and that the new figure was higher than that of the Precomprimido-Berger group. In addition, there are plentiful supplies of cement available locally.

These reasons have prevailed, and a well-informed—though unofficial—source in Caracas made it clear within a few days of bid opening on March 7, that the U. S. firms' bid would not be considered.

• **Rail-road provision**—Principal reason for the high cost of the structure is the requirement that the bridge carry two lanes of vehicular traffic in each direction, and a single-track railroad, designed for extremely heavy loadings (Cooper's E70). Additionally, almost the whole 7,130 ft of the structure over deep water is considered to be over the channel, and the government has required that tankers have clear passage at any point in that width.

As is the custom in many South American countries, the Venezuelan government supplied no plans and specifications. It merely set the terminii (Punta Iguana on the east side, Punta Piedras on the west) and the channel clearances. The nine bidders, prequalified, were asked to supply their own designs.

No railroad now connects the city of Maracaibo with the rest of the nation, and road connections are broken by a 45 minute ferry trip across the lake mouth. Total length of the structure—necessitated by the flat countryside, the requirement that grades for the railroad be held to not more than 1.211% and the need for a minimum clearance of 148 ft in mid-channel—will be about 28,600 ft.

• **Successful design**—The Precomprimido-Berger design is credited to Riccardo Morandi of Rome. In general, the structure will consist of 87 spans, ranging in length from 125 ft to the 1,312 ft central span. Width at deck level will be 68½ ft. The deck will carry an asphalt wearing surface.

Most radical in design and appearance, however, will be what Morandi has characterized as a balanced suspended design.

This consists of two identical reinforced concrete towers, 390 ft in height, each carrying cable-supported spans extending 575 ft toward the center and 492 ft toward the two shores. The 575 ft sections are to be joined with a 230 ft section of prestressed concrete beams, resting on the ends of the sections, to form the whole main channel span.

Supporting these members will be steel cables strung over the tops of the towers, then encased in concrete conduits. These assemblies will then be cast into a solid concrete member measuring 6½x6 ft in cross section, and the whole then stressed. After the members thus made have set, the space between the cables and the conduits will be filled with grout.

• **Other features**—Pile bents supporting the conventional reinforced concrete piers for other parts of the bridge will be cast-in-place concrete members, and

most of the deck structure will be precast, prestressed sections.

Related work already under construction includes a 30-mile expressway linking the oil towns along the eastern shore of the lake, and a six-mile express road from Maracaibo itself to the bridge's western approach. Extension of the railroad is also scheduled to start soon, to be ready for the bridge's completion date in 1960.

Payment is to be made in three annual installments of about $30 million, and a final payment to be made on completion. Financing will be through toll charges.

Progress in Transit

Several states move to aid transportation lines

Added evidence of increasing interest in mass transportation came last week as several more states took legal action to relieve public transportation systems from the twin squeeze of increasing costs and decreasing revenues.

Following the lead of Illinois, Iowa, and Rhode Island, which have already granted tax relief in some form to bus and rail transit companies (ENR, May 23, p. 28) are Maine, Pennsylvania and Michigan.

In Maine, a law has been passed which exempts urban bus companies from local excise taxes, and preliminary approval has been given another bill which will exempt local scheduled bus lines from 6/7 of the state gasoline tax.

In Pennsylvania, bills have been introduced in the legislature, but not yet passed, excluding urban bus lines from the state's 14 mill gross receipts tax on public utilities, reducing city bus registrations to $1.00, and exempting buses from state gasoline taxes.

Michigan's tax relief law for local bus companies is tied in with profits—when the profits of a line drop below 6.5% of its operating revenues, the state may refund part of the gasoline and weight taxes paid by the company. Opponents of the bill claim it provides no safeguard against excessive spending by the bus companies, but in speaking for the bill just prior to its passage on a two year trial basis, State Senator Clyde Geerlings said, "At least we ought to give this method a try. I realize that the bill may not be perfect, but we should certainly try to save these companies from bankruptcy, which would force them into municipal ownership. If they are owned by the cities, the state will lose all of the gas and weight tax money, not just part of it as under this measure."

Not all legislators, however, share Sen. Geerling's objections to public ownership of mass transportation facilities. In California, a bill has been passed by the legislature and is now awaiting the governor's signature, which will authorize public purchase for $33 million of two privately owned Los Angeles lines. If the bill is signed (and the chances are it will be) the companies will be merged under the control of a seven man transit authority, whose duty it will be to manage the existing facilities and to expand them considerably by constructing a 40 mile rail link between the San Fernando Valley and Long Beach.

Nebraska is another state which has no objection to publicly owned transportation systems. Initial approval has been given a bill permitting Omaha voters to set up a metropolitan transit authority for the purpose of taking over, either by purchase or condemnation, the privately owned Omaha Transit Company.

In Texas, a bill approved by the legislature and sent to the governor for signature will permit all home rule cities to issue revenue bonds for the purpose of acquiring and operating urban bus systems.

Too Cheap Water

Grass roots publicity campaign gets under way

A nationwide public relations effort to explode the "cheap water" concept is officially under way.

At the Water & Sewage Works Manufacturers Association luncheon meeting during the May 1956, convention of the American Water Works Association in St. Louis, Public Relations Counsel Albin Dearing keynoted a W&SWMA-sparkplugged campaign to cure the curse of too-cheap water (ENR May 31, 1956, p. 104). Since then, Mr. Dearing has enlisted the support of 19 national industry, technical and conservation associations to form Water Resources Council, Inc.

Last month the new organization, with a warm endorsement from President Eisenhower, kicked off the first phase of its public relations program: a clean streams plea backed by public recognition of those municipalities and industries that voluntarily respond. The

(*Continued on page 30*)

Highest Earthfill Dam Starts to Grow

Pacific Power & Light Co., Portland, is starting work on the main embankment for its Swift hydroelectric project on Oregon's upper Lewis River (ENR Mar. 21, p. 94). This view of the site, looking downstream, shows a cofferdam (center) that will become part of the main structure.

To be 510 ft high, Swift will be the highest earthfill dam in the world. Placement of 15 million cu yd of rolled earth and rock will begin in late summer. The job of driving steel piling to bedrock to prevent seepage beneath the dam is completed, and power tunnels are well under way.

Construction of 204,000 kw powerhouse is to get started in July. The $51 million development, to be finished late next year, is a joint venture. Contractors are J. A. Jones Construction Co., Charlotte, N. C., and Chas. A. Tompkins Co., Washington, D. C. The Bechtel Corp., San Francisco, is handling engineering, design and construction management.

recognition will be in the forms of pennants and highway signs.

WRC's program began in Pennsylvania, in recognition of that state's early and continuing efforts toward the conservation of water.

Water Resources Council plans to follow up the anti-pollution phase of its program by concentrating on the groundwater and resources development aspects of the water problem. Such division of the field is the best way, WRC feels, to reach the public and obtain its support of the theme that water is worth paying for and must be paid for.

To help carry the financial burden of its public relations undertaking, the council is hopeful of support from various philanthropic foundations, and industry and trade groups from the chambers of commerce on down. Present membership includes the Federation of Sewage & Industrial Wastes Associations, American Public Works Association, Conference of State Sanitary Engineers, General Federation of Womens Clubs, National Wildlife Federation, American Nature Association, American Recreation Society, Izaak Walton League of America, National Association of Engine & Boat Manufacturers, National Council of State Garden Clubs, Inc., National Fisheries Institute, National Parks Association, Outdoors Writers Association, Oyster Institute of North America, Sport Fishing Institute, the Garden Club of America and the Wildlife Management Institute, AWWA and W&SWMA.

The council's technical advisory groups are the U. S. Public Health Service, Mellon Institute for Industrial Research and the Conservation Foundation; Water Resources Council headquarters is at 22 East 60 St., New York 22, N. Y.

Keystone Shortway

New interstate link hit by turnpike bondholders

The proposed "Keystone Shortway," a nearly straight line route across central Pennsylvania from Sharon at the Ohio line to Stroudsburg at the New Jersey boundary has been approved for inclusion in the interstate highway system.

The $267 million, 921 mile highway has been the subject of bitter controversy for some time. Running roughly parallel to and about half-way between the Pennsylvania Turnpike on the south and Route 6 to the north, the new limited-access road will speed traffic between New York and Detroit or Chicago, but it serves no major cities located within the State of Pennsylvania.

Property owners on Route 6 have fought the proposed highway because they feel that the diversion of traffic will hurt them badly, and the Turnpike Authority fears competition that would develop on the more conveniently located free road.

The City of Philadelphia has protested the location of the road for two reasons—its port interests fear that the new route will divert cargo carrying trucks to New York, and its city government expects that use of federal funds for construction of the highway will deprive them of money for the construction of several badly needed city expressways.

In spite of the objections, Pennsylvania Highway Secretary Joseph J. Lawler insisted that the proposed route would be the most beneficial for all concerned since it will not only speed through state traffic but will permit development of the new rural northern sections of the state. Bertram J. Tallamy, Federal Highway Administrator, has admitted that approval of the route was made on Mr. Lawler's recommendations.

As a concession to Route 6 property owners, Mr. Lawler has stated that he is now going to push a $29 million improvement of the highway under the Federal Primary Road program on a 50-50 matching basis.

Harry S. Rogers Dies

Engineering educator was President of Brooklyn Polytechnic Institute

President Harry Stanley Rogers of the Polytechnic Institute of Brooklyn died suddenly June 6 from a cerebral hemorrhage suffered during a college dinner.

One of the nation's best known and most widely respected engineering educators, President Rogers had been at the Brooklyn institution since 1933. Previously he had been Dean of Engineering at Oregon State College. A graduate in civil engineering from the University of Wyoming, he had also taught at the Universities of Iowa, Wyoming and Washington and at Lafayette College.

When he became president of Polytechnic, the total enrollment was 2,000. Today the size of the student body has trebled, and the graduate enrollment has increased nine times.

Throughout his career President Rogers was active in the American Society for Engineering Education, and served it two terms as president. He was also a leader in the Engineer's Council for Professional Development.

An exponent of engineering in public affairs, President Rogers had been president of the Brooklyn Chamber of Commerce, the Rotary Club and other organizations. His advice was sought by business and industry, and he was a director of several companies, including the New York Telephone Co., and the McGraw-Hill Publishing Co.

Ready for Far North Warning Net Construction

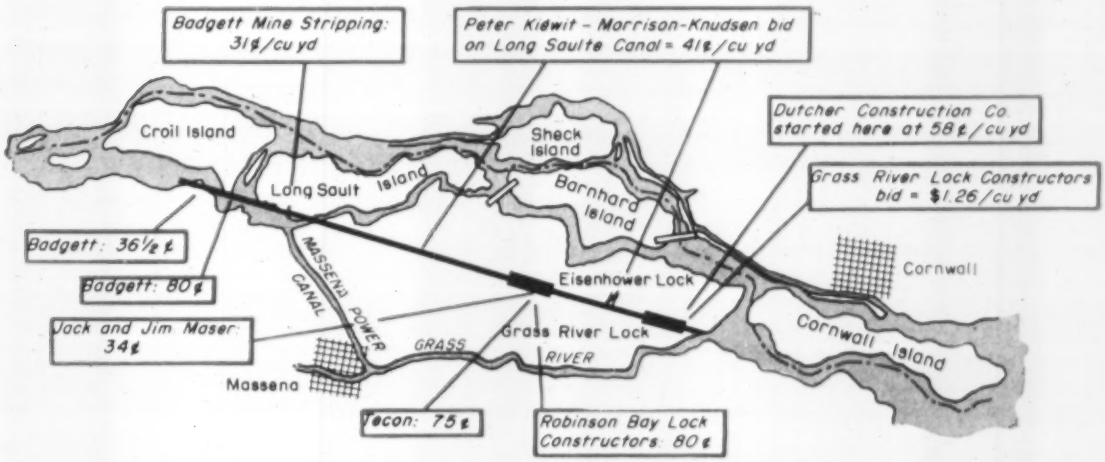
Desolate beaches along a 1,000 mile stretch of the Aleutian Islands chain are coming alive to the sound of heavy construction equipment this month, as work begins on construction of six new links in the U. S. radar warning system.

From Port Heiden on the Alaska peninsula to Nikolski on Umnak Island, the six new radar stations will extend the far northern warning network known as the DEW-Line far out into the Pacific. Six U. S. construction firms hold contracts under the $25 million program, being supervised for the Air Force by the Alaska District of the Corps of Engineers.

Here, two barges carrying first construction equipment and supplies for the Driftwood Bay station leave Dutch Harbor, Alaska, en route to a staging area.

St. Lawrence Seaway Excavation:

Whose bid was the right one?



Just How Much Has It Really Cost?

St. Lawrence Seaway excavation has been a low-bidder's nightmare. One early contractor went bankrupt; a second defaulted; a third reportedly has a big claim in. Unit prices for digging Long Sault Canal have ranged from 31 cents to $1.26 a cubic yard.

"Glacial till" and "marine clay" are new cuss words for the lexicon of earthmovers who have dug into these materials on the St. Lawrence Seaway's Long Sault Canal. Reason: They underestimated how much it would cost to move a cubic yard of the dense till and the greasy clay when they bid on lock and canal excavation contracts.

And even now, with the excavation well along toward completion, it's hard to put your finger on the actual cost of moving the material, difficult to say what unit prices these contractors should have bid. Unsettled claims for extra payments are the reason why a clear-cut, complete story of Seaway earthmoving costs can't be told yet. The contractors, arguing among other things that the material excavated was "cemented", will say very little about their claims against the owner. The owner, St. Lawrence Seaway Development Corp., and the Corps of Engineers, its construction agency, will say nothing.

All you can do for now is see what story the bid prices and contractor failures tell. For it's a safe bet that the unit prices bid by the contractors who defaulted or went bankrupt were not high enough. As for the contractors who completed or are completing their work under protest, it is possible to say what their bids were but impossible to say whether these were proper prices without knowing exactly what claims they have for additional payments.

The original excavation contracts for the Seaway in its 10 mile cross-country stretch near Massena, N. Y., were three:

Jack & Jim Maser, Inc., tackled just over 1 million cu yd at Eisenhower Lock (then called Robinson Bay Lock) at 34¢ per cu yd.

Dutcher Construction Corp. contracted for almost 3 million cu yd, largely the treacherous marine clay, at Grass River Lock at 58¢ per cu yd.

Peter Kiewit Sons' Co. and Morrison-Knudson Co. took on the canal digging outside the locks, a total of 12.5 million cu yd at 41¢ per cu yd.

Jack & Jim Maser defaulted.

Dutcher was bankrupt.

And the PK-MK combine reportedly has a $5½ million claim on its $6½ million contract.

Does this mean that the material can't be dug for 34, or 41, or 58¢ per cu yd?

It has been reported that the Maser firm was pretty generally criticized by contractors and engineers throughout the area for using scrapers on the glacial till (a hard and boulder-strewn soil that can weigh 150 lb per cu ft in place and had to be ripped ahead of the scrapers). But to Maser's credit it also has been reported in an earlier ENR story that he has persevered with his 18 original scrapers, and in recent months has been subcontracting to PK-MK on the canal at a 55¢ per cu yd price—14¢ more than the prime contractor is paid.

For Dutcher's part it can be repeated here that his job appeared to be and was generally conceded to be a well-run operation. He was plagued with rubbery haul roads and sticky disposal areas where positive unloading had to be used to get the marine clay out of his trucks. But his 58¢ price for the clay and till he had to dig and haul was apparently not enough, no matter how valiant his effort.

On PK-MK's work on the great volume of canal excavation outside the lock areas, shovels, a giant walking dragline and a small suction dredge have all been used on the digging. The experienced contractor-combine has an army of men and equipment on the work, but has quite apparently lost its fight to move earth at its bid price.

• **Prices go up**—Later contracts have settled on higher unit prices. The Tecon Corp. took on Maser's unfinished business at 75¢ per cu yd, but even this was probably not enough for the winter conditions under which the Dallas firm worked. They were shooting the frozen material so their shovels could dig it; it was freezing into their trucks; and great lumps of frozen till dumped in dike areas reportedly were found frozen still the next July when reworked for compaction on the dikes.

Later excavation at Eisenhower Lock, where Maser had bid 31¢ and

Fecon got 75¢, has been done by the lock constructors, (a combine of Morrison-Knudson, Perini and Walsh) at 80¢ per cu yd for 3.4 million cu yd.

And at Grass River, the lock contractor (Perini, Walsh, Morrison-Knudsen, Peter Kiewit and Utah) got the job with a whopping $1.26 per cu yd bid price on remaining excavation—3.8 million cu yd, mostly downstream from the lock in marine clay.

Does this mean Dutcher's 58¢ per cu yd should have been nearer $1.26?

• **The Gentleman does a job**—While the mainland contractors have been having their troubles, Badgett Mine Stripping Corp., up from Kentucky coal fields, finished off its assigned tasks in cutting the Seaway channel across a couple of islands and a point of land upstream from the Long Sault Canal. On the island work this firm used almost exclusively its giant walking dragline, The Gentleman, and reportedly made money at 31¢ per cu yd on Long Sault Island for 3.2 million cu yd, its major portion of work. At Richards Point, using shovels, Badgett moved earth for 36½¢ a cu yd. And a relatively small amount of excavation on Croil Island (370,000 cu yd) was done at 85¢ per cu yd.

What's to be concluded?

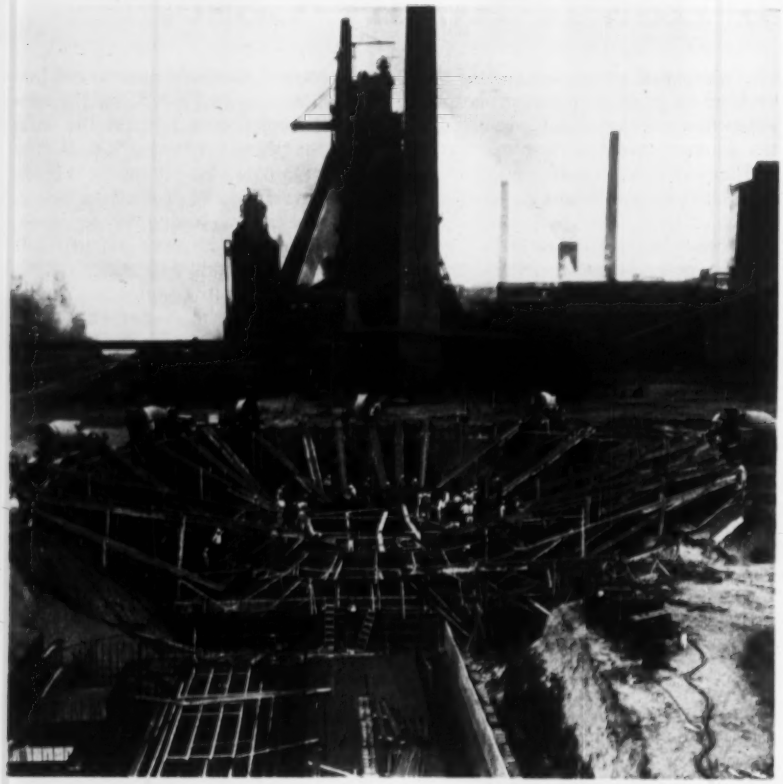
Is 31¢ per cu yd a good price for moving the glacial till where a giant dragline can cast it as far as it needs to be moved?

Is 55¢ per cu yd a fair price for scraper operations? Are haul distance and depth of excavation controlling factors?

Is 80¢ too high, or a good price for shovel and truck operations?

And in the marine clay, if 58¢ was too little, is $1.26 far too much?

The contractors still there on the Seaway should now know the precise answers. Some have gained in wisdom while losing money. The less-than-precise answers presented here are, at least, better information than these contractors had on which to base their bids. It is Monday morning quarterbacking that might help someone else in the future.



Blast Furnace Base Cast in a Hurry

Foundations for the fourth blast furnace at Kaiser Steel Corp.'s Fontana, Calif., steel mill were concreted in a little over 7 hours. About 30 slides and 50 transit-mix trucks were used in a continuous placing of 2,200 cu yd of concrete.

The blast furnace is part of Kaiser Steel's $194 million West Coast expansion program. When the program is completed in mid-1958 the company's steel ingot capacity will have increased from 1.5 million tons to about 3 million tons a year.

New Feeder Network

Canadian province begins farm-to-market road plan

The province of Saskatchewan, Canada, is well started on a 12,000 mi all-weather municipal (county) grid roadbuilding program that will cost $50 million over the next nine years.

Costs of the system, including gravel, have been running $3,000 to $4,450 per mile.

The program was designed to offer a solution toward providing better all-weather roads for large rural areas faced with the problem of extensive mileages, low population density and limited funds.

The grid is intended as a feeder network for the 8,500 miles of provincial highways. The cost is being divided 50-50 between the provincial government and the participating local governmental units.

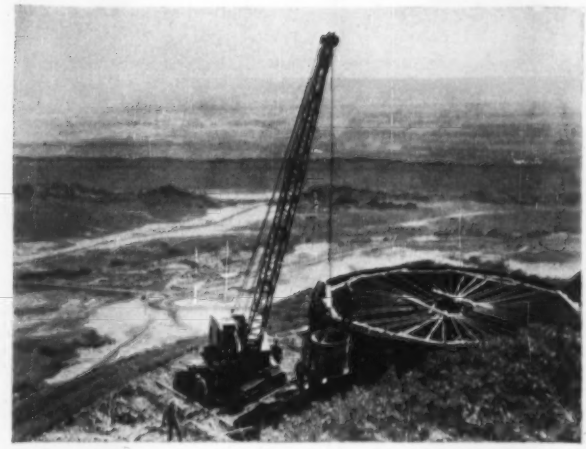
Municipalities, after reaching agreement with the provincial highways department on road locations, accept responsibility for building and maintaining the road. A Municipal Road Assistance Authority, however, sets and maintains standards, carries out surveys, advises on condemnations and carries out all interim and final inspections. It also provides special engineering services, such as running the curves and locations through valleys. However, limited funds preclude the Authority from making gradeline design and slope staking services.

To warrant construction of an all-weather road an average flow of 50 to 100 vehicles per day is required. Curvature, grades, sight distance and general conditions of the road must be such that traffic can travel at 40 mph (the usual speed is 25 to 45 mph).

For traffic of this volume, a 2-lane road 20 ft wide is considered satisfactory, but width will be extended to 22 and 24 ft where traffic is heavier. The maximum degree of curvature is 14 deg for most construction but where traffic is heavier, 11 deg is required and in some cases, 8 deg. A maximum grade of 9% has been established, but this is likely to be revised to 7% because of the prevalence of hazardous ice conditions.

Another problem is frequent and rapid snow blockage because of high winter winds. Since mechanical snow removal is impractical, emphasis is being placed on high grade-lines located well above the surrounding topography, tree fences, artificial snow fences and a 2:1 slope with 1½:1 backslope. Where possible, slope requirements will be raised to 4:1 for slopes and backslopes with shoulders and ditches rounded to permit further wind action.

These jobs profited from Bucyrus-Erie Cranes . . . yours can too!



DENVER, COLO. Tractor-type crawlers provide extra clearance for passing over rocks, boulders, etc. Deep grousers provide sure footing for maneuvering on mountainous terrain. This Bucyrus-Erie 22-B reaches out with a 50-ft. boom and accurately pours its 1-yd. bucket of concrete in the construction of a guided missile plant near Denver.

Whatever the job, it can profit from the extra working ability of a Bucyrus-Erie lifting crane. From the ground up, these machines are designed and built to put power and strength to work hoisting and placing loads quickly and smoothly with maximum efficiency.

See your Bucyrus-Erie distributor soon and have him give you all the facts on cranes with lifting capacities ranging from 3 to 60 tons.

334E57

BUCYRUS ERIE

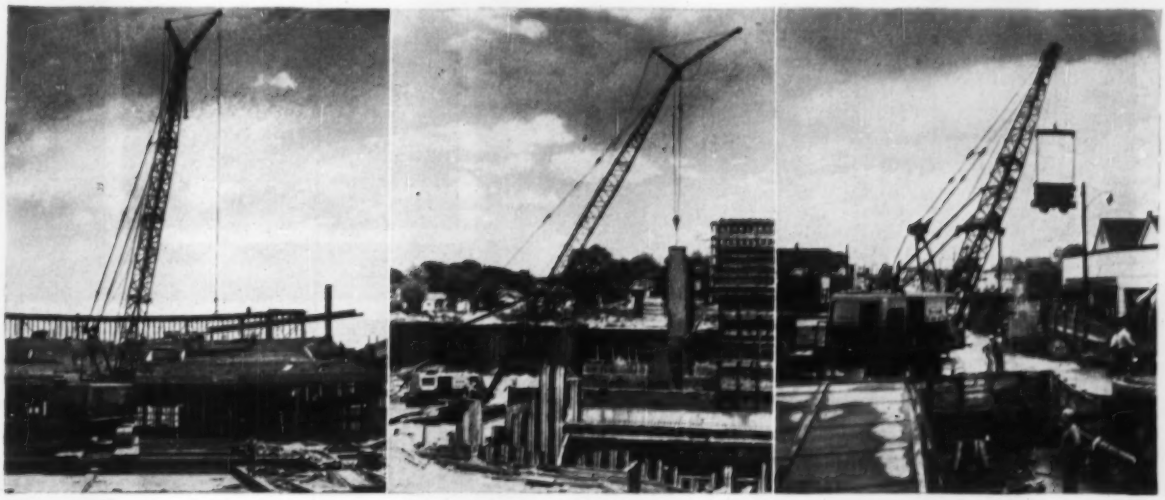
SOUTH MILWAUKEE, WISCONSIN

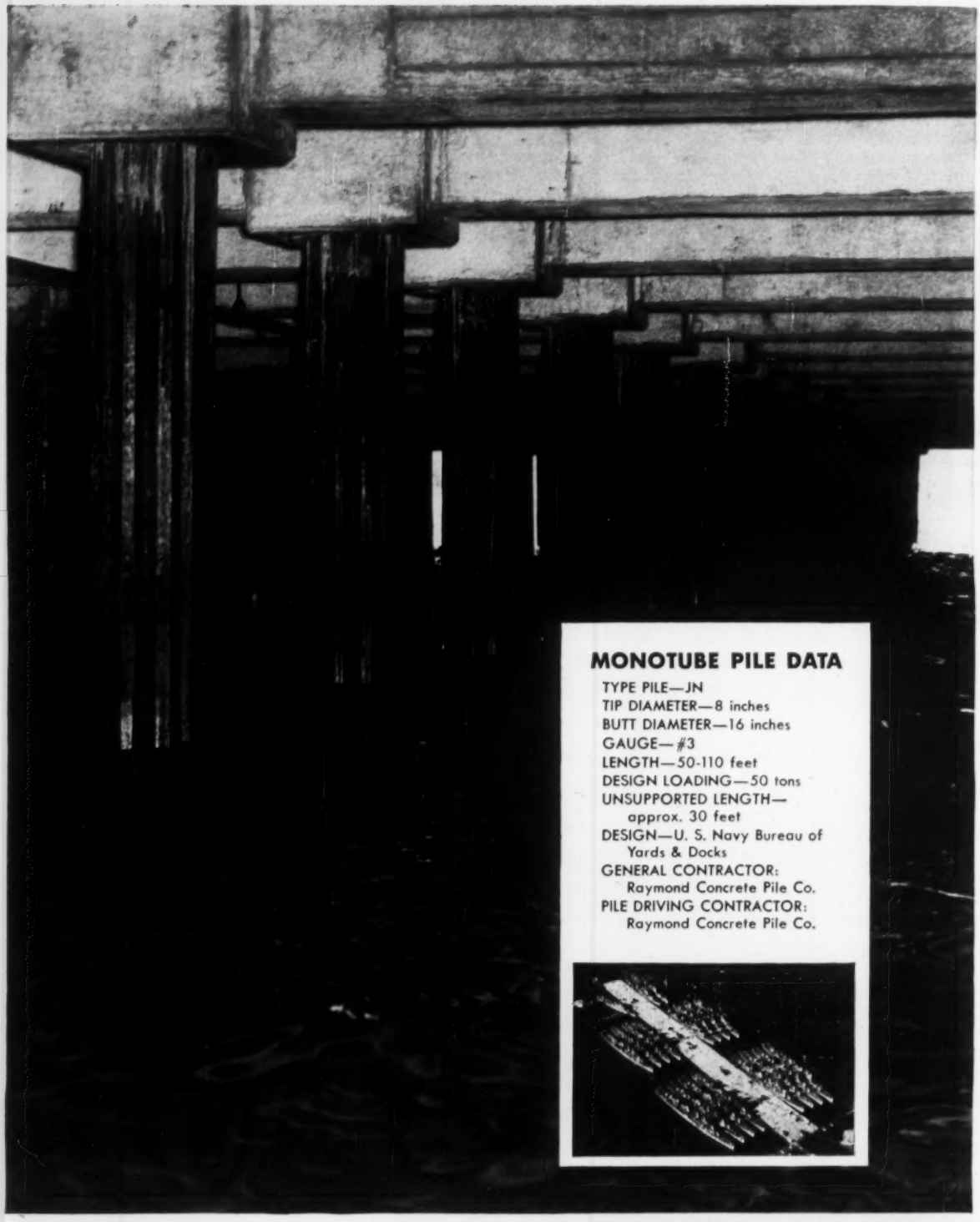
PASADENA, CALIF. High lifts in erecting a steel bridge are handled by this Bucyrus-Erie team — an 88-B equipped with a 160-ft. boom-jib combination and a 38-B with 110-ft. boom-jib combination. Users recognize Bonus Quality in the balanced performance and daily dependability of Bucyrus-Eries.

COLUMBUS, OHIO. Handling structural steel is one of a variety of light- and heavy-duty lifting jobs assigned to this Bucyrus-Erie 51-B in the construction of a hospital. You'll find all the essentials of profitable crane service in Bucyrus-Eries — speed, power, smooth operation, long reach, stability, and low cost maintenance.

LOUISVILLE, KY. This Bucyrus-Erie 54-B takes full advantage of its stability and 100-ft. boom in placing steel plate during the construction of a pumping station for flood control. The crane is also used here for clamshell service and is also convertible to dragline, dragshovel, or shovel.

DETROIT, MICH. Rugged 24-hr. service on tough tunnel excavation work in storm sewer construction is a natural for this sturdily-built, steady-working Bucyrus-Erie 38-B. It is removing a mud-box filled with muck from the tunnel shaft.





MONOTUBE PILE DATA

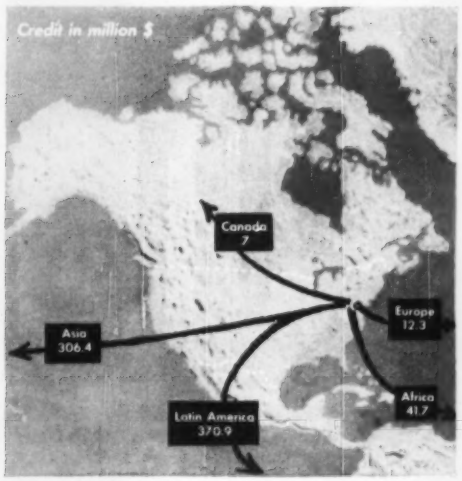
TYPE PILE—JN
TIP DIAMETER—8 inches
BUTT DIAMETER—16 inches
GAUGE—#3
LENGTH—50-110 feet
DESIGN LOADING—50 tons
UNSUPPORTED LENGTH—
approx. 30 feet
DESIGN—U. S. Navy Bureau of Yards & Docks
GENERAL CONTRACTOR:
Raymond Concrete Pile Co.
PILE DRIVING CONTRACTOR:
Raymond Concrete Pile Co.

STABILITY WITH MONOTUBES . . . ideal as piles with long unsupported lengths in pier work. In the construction of the 1,350-foot U.S. Navy berthing pier, Newport, R. I., piles in excess of 100 feet in length were driven in perfect alignment facilitated by the extreme rigidity of Monotubes.

Tapered, fluted Monotube piles are available in lengths, diameters and gauges to meet every requirement. Write The Union Metal Manufacturing Co., Canton 5, Ohio, for complete information.

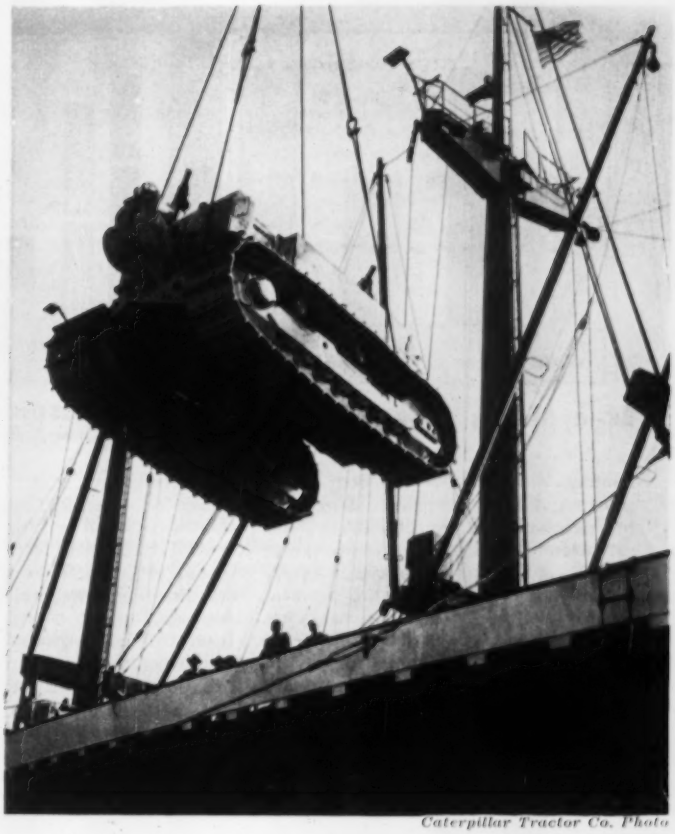
UNION METAL

Monotube Foundation Piles



Covering the world . . .

The Export-Import Bank of Washington is not just another bank. Through Ex-Im backing, U. S. suppliers send equipment, such as this tractor (right), to all parts of the world. Only U. S. contractors can compete for construction projects financed with Ex-Im money. Here's how . . .



Caterpillar Tractor Co. Photo

This Bank Exports U.S. Construction

The Export-Import Bank of Washington has spurred the efforts of the U. S. construction industry to compete with producers abroad through a mounting volume of loans, which over the past five years totals $227.2 million.

As the chief lending arm of the United States for international trade, the bank's function is to assist private U. S. exporters in selling equipment, materials, and technical services to foreign importers, who otherwise would not be able to purchase American goods.

Created in 1934, the Ex-Im has become a large-scale business operation. U. S. suppliers and contractors have and will continue to share in its lending authority of $5 billion. During its 22 years of existence, the bank has authorized more than $743 million in credits for the export of U. S. construction goods and services, of which $413.6 million has been disbursed in loans.

As a lending institution, the bank has rendered a unique service to American business interests and to foreign borrowers. Only U. S. contractors and suppliers are eligible to compete for the world-wide projects financed by it. And, Ex-Im steps in where other institutions, such as World Bank are not permitted to operate. While the World Bank lends only to member governments, Ex-Im makes loans both to foreign governments and private borrowers for the export of U. S. capital goods and technical services.

The bank also handles some loans that commercial banks are not equipped to make. It does not make short-term loans. Its loans run for one year or more, and until recently, the bank seldom extended a credit for less than $10,000.

• **Types of loans**—In supporting the private U. S. export trade, Ex-Im finances two types of credits. The most important of these is the development credit, which originates at the request of a foreign government, agency, or private firm seeking a loan for U. S. goods and services. Loans of this type form 95% of the bank's activity.

Projects of all types and sizes fall into the development credit category—from a credit of $165,000 for the rehabilitation of a water and sewer system in Ecuador to a $23 million credit for power plant expansion in Mexico.

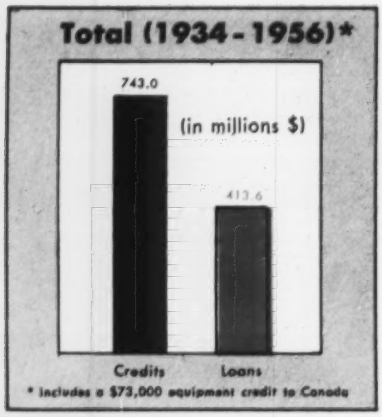
During its existence, the bank has authorized $657 million in credits for construction projects and disbursed $346.2 million in loans.

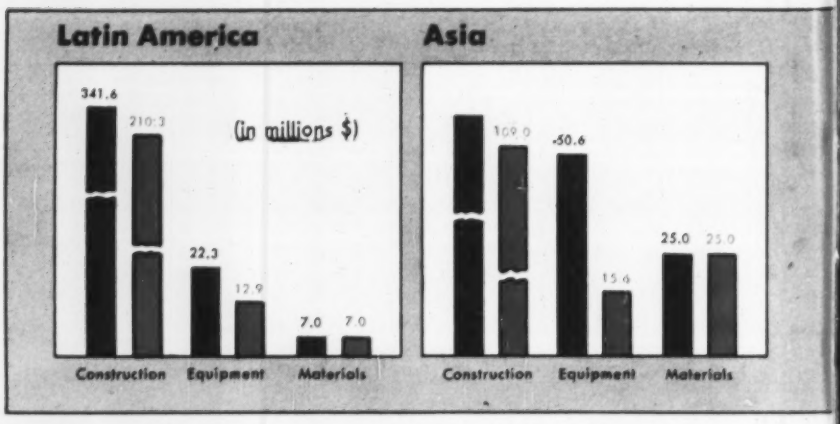
Although the cost of sending U. S. services abroad is financed by the bank, contractors for a specific project are selected by the overseas borrowers. Through competitive bidding, the firm or government overseas can engage the contractor of his choice, who in turn selects his own U. S. suppliers. The number of borrowers receiving such credits has been comparatively small. But the number of suppliers who get the business is large, running at times into the hundreds (on cement plant projects, for example.)

Ex-im's second method of operation is through an exporter credit program.

Under this arrangement, a supplier either can obtain a credit line or request a loan on a case-by-case basis. Only two requirements are imposed: one, that the credit worthiness of both the supplier and the buyer be approved; two, that the borrower's country be able to supply him with the dollars necessary to repay the loan.

Equipment credits, which are





LEADING MARKET for U.S. equipment is resource rich Latin America.

IRRIGATION, POWER, projects have been aided in second biggest market.

Ex-Im Means . . .

handled through the exporter credit program, tend to be smaller than those for development projects. They have varied from a $1,000 credit for power shovels in Iceland to a credit of $9 million for a turbo-generating unit in Japan. In its 22 years, the bank has authorized credits totaling $114.8 for equipment and materials, of which $67.4 have been disbursed in loans.

• **Market abroad**—Trade under the aegis of Eximbank financing flows to every part of the world. Construction projects financed by the bank also have been as varied as the range of countries receiving such assistance—from irrigation of the Helmand River Valley in Afghanistan to development of the Toquepala Copper Mine in Peru.

But for the bank and the construction industry, Latin America has developed into the most important area of activity.

The diversity of Eximbank projects in Latin America is striking. Credits for power development total $112.6 million, with Brazil and Mexico taking the lead. Ecuador has received a series of loans to expand water and sewer systems. Highway projects in Central America, under the impetus of the Inter-American highway program, are in full swing. And industrial plants, from construction of the first cement plant in Guatemala to a sprinkling of asphalt and concrete batching plants in Peru and Venezuela are receiving loans.

Why has such a concentration of activity developed here. The reasons are simple. Potentially one of the richest areas of the world in resources, agricultural and industrial development, Latin America remains one of the most impoverished and underdeveloped. It is a natural market—wide open for the equipment, materials, and technical services which can be provided by the U. S. construction industry and the capital of Ex-Im. Secondly, by assisting private exports from the U. S. to the Americas, the bank is strengthening trade in an area which always has been important to this country.

• **Ex-Im highway projects**—Of all the credits being authorized to Latin America, those for highway projects are most representative of the bank's activity.

As with other development credits, these involve the export of both U.S. machinery and technical services. Usually, one major contractor handles the project, although numerous U.S. suppliers export the necessary materials and equipment.

In keeping with Ex-Im policy, a loan for highway development finances only the cost of U.S. goods and services. All Eximbank money is spent in this country—the cost of installing equipment, or financing materials and labor which can be furnished locally is carried by the participating country.

Repayment terms are based upon the nature of the project. For highway credits these have varied from 9 to 20 years. A current highway development loan is being repaid in 36 semiannual installments.

Extremes in Latin American topography have challenged the ingenuity of engineers and contractors, making these highway projects some of the most unusual in the world. Bolivia's Cochabamba to Santa Cruz Highway, financed by a loan of $33 million, is an example.

To construct this 312 mile road, a rain forest had to be crossed in addition to a swampy jungle at 11,000 ft. Paving of the road now is in the process of completion, but in its early stages, materials were transported over a 5,000 mile supply line—through the Panama Canal to Chile, 800 miles by rail up the Andes to Cochabamba and from there by road.

Elsewhere in Latin America, Ex-Im loans have assisted in the construction of such important transportation routes as the Inter-American Highway.

History of the Export-Import Bank

The Export-Import Bank was established on Feb. 12, 1934 to finance a loan to Russia which was never made. It received an initial capital of $1 million and $10 million borrowed from the Reconstruction Finance Corporation.

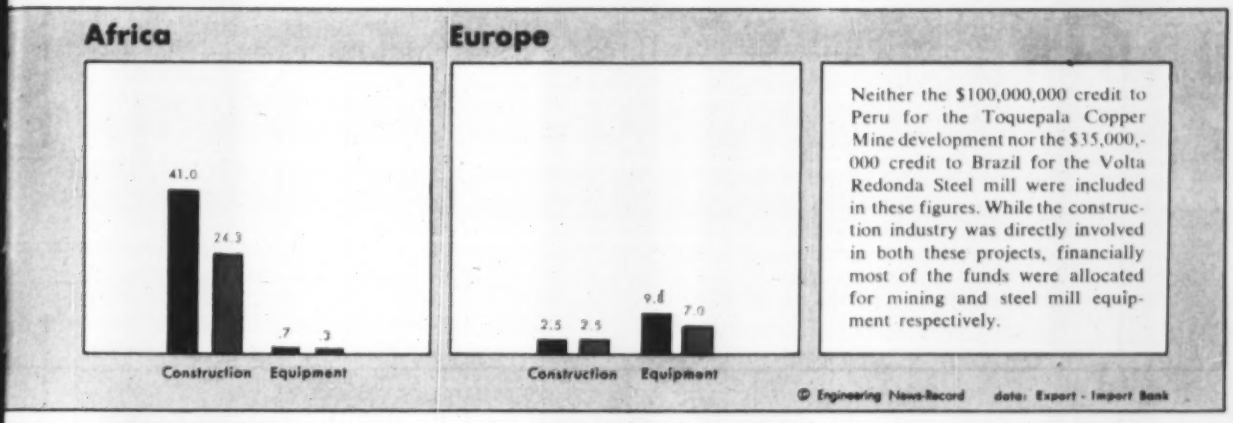
Between March 9, 1934 and July 31, 1945, seven statutory changes were made. The last of these established the Bank as an independent agency and increased its lending authority to $3.5 billion.

On August 9, 1954, through a new amendment to the Export-Import Bank Act, the Bank's lending authority was increased to $5 billion. Of this sum, the Bank owns $1 billion in capital stock and has the authority to borrow $4 billion from the U. S. Treasury.

During its lifetime, the Bank has authorized over $8.3 billion of credits in 68 countries of the world.

As a result of the August, 1954 amendment, the Bank's affairs are managed by a full-time bi-partisan Board of Directors, appointed by the President by and with the advice and consent of the Senate.

A non-salaried advisory committee, representing finance, commerce, industry, agriculture, and labor meets three times a year to determine questions of policy. This committee is appointed by the Board of Directors on the recommendation of the President of the Bank.


Africa
Europe
41.0
24.3
.7
.3
2.5
2.5
9.8
7.0
Construction
Equipment
Construction
Equipment
Neither the $100,000,000 credit to Peru for the Toquepala Copper Mine development nor the $35,000,000 credit to Brazil for the Volta Redonda Steel mill were included in these figures. While the construction industry was directly involved in both these projects, financially most of the funds were allocated for mining and steel mill equipment respectively.
© Engineering News-Record data: Export - Import Bank

HIGHWAY, IRRIGATION, industrial projects have benefited from Ex-Im funds. **POWER FACILITIES,** industrial projects lead all other construction categories.

Two-thirds of the funds needed to finance this construction have been allocated by Congress, but the Eximbank has made loans to Cost Rica, Nicaragua, and Honduras, enabling these countries to finance their shares.

The most recent of the bank's credits is one of $1,630,000 extended to Honduras. Funds for construction and engineering costs on three sections of the highway will be disbursed by the Government of Honduras under the supervision and control of the U.S. Bureau of Public Roads. Preparation of surveys, plans, estimates, and the letting of contracts are being handled by the bureau. But the job of completing 353 miles of highway by 1960 would have been impossible without Eximbank assistance.

• **Mining**—Unique among development projects in Latin America is that of the Toquepala Copper Mine in Peru. The Ex-Im, matching the $100 million pledge of the Southern Peru Corporation, extended the largest single credit ever made to a private borrower to assist in developing this project.

The earthmoving job required as a preliminary to the mining is in itself monumental. Allis-Chalmers Co. has shipped electric power shovels to be used in stripping 132 million cubic yards of waste from the mine site.

However, despite major exports of earthmoving equipment and the hiring of one of the largest contracting firms in the U.S., only a minor portion of the credit was allocated for these purposes, the bulk of the funds being used for mining equipment and services.

Since the signing of the loan agreement in 1954, the principal activities in connection with this project have been the selection of U.S. engineering and contracting firms to build the necessary facilities. The prime contract for construction and equipment was awarded jointly to the Utah Construction Co. and Morrison-Knudsen. In addition, a Peruvian subsidiary of the Foley Construction Co. of Pittsburgh has been engaged to develop port facilities at Ilo, on the southern coast of Peru. Expansion of this port will accommodate the deep freighters needed to transport goods to Toquepala and the shipment of copper to this country.

A crop of new Eximbank loans to Latin America indicates that this area will continue to be an active one. The most recent spurt of activity has been that of financing exports of the construction machinery and equipment which will be used in building a new capital city for Brazil.

The bank also expects to process a $15 million application for the Almos-Marianon road project in Peru. In addition, four credits have been authorized to Costa Rica, Paraguay, Chile, and Panama for development projects, which include construction of a comprehensive sewerage system and the rebuilding of a childrens' hospital.

• **Activity in other areas**—If the market for Ex-Im financing and construction exports has been heaviest in Latin America, Asia ranks second.

Irrigation, power, and industrial plant projects have scored high, contributing to the $109 million disbursed in loans to assist in construction of these projects.

Conversely, Europe has been a relatively lightweight recipient of such assistance. This is not surprising, since fairly recently few loans were made to European countries while the Marshall Plan was in effect. At present, many of the European loans are being used for expansion of the steel, automobile, and aircraft industries. To date, the bank's outstanding European financing has been the authorization of a $500 million standby credit to Great Britain for the purchase of U.S. oil.

• **Exporter Credit Program**—Important as development credits are in Eximbank activity, they do not tell the whole story. A vast market for construction equipment exists abroad from Iraq to Spain to Venezuela. To enable a supplier to fully utilize the opportunities

How Equipment Loans Are Made

Obtaining an equipment loan is relatively simple. For example, a U. S. producer of cement plant equipment decides that he would like to sell to a buyer in Mexico, where at present a flurry of cement plant expansion is taking place.

He writes a letter to the Bank, requesting either a specific loan which would enable the overseas buyer to purchase his equipment, or he asks for a line of credit.

The credit of the overseas concern is investigated together with the ability of his country to repay the loan in dollars. All overseas borrowers, whether they be private businesses or governments must repay in American dollars. The credit of the U. S. firm also is investigated.

Exporter credits, being comparatively small, are reviewed by only one officer of the loan review committee. (An economist, lawyer, engineer, and loan review officer approve development credits.)

The Bank then picks up the note from the supplier and buys it, establishing at this time, repayment terms which the overseas buyer will be required to fulfill. The Bank finances 60% of the export, the U. S. manufacturer 20%, and the overseas buyer makes a downpayment of 20%.

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Bank's Best Customers

25 U. S. Suppliers with Largest Active Credit Lines

These U. S. Suppliers . . .	. . . have been credited with This Amount . . .	. . . To finance this equipment.	Here's How much the Eximbank has agreed to disburse to date . . .
Caterpillar Tractor Co. .	$10,809,521	Agricultural, construction.	$1,184,521
Internation G. E.	10,000,000	Electrical; locomotives . . .	675,000
General Motors Overseas	10,000,000	Transportation; generating	284,000
Ford Motor Co.	10,000,000	Trucks, tractors	None
Combustion Engineering.	6,000,000	Steam generating	1,526,500
Massey-Harris-Ferguson.	5,609,744	Agricul.; industrial tractors	264,744
J. I. Case	5,012,760	Agricul.; industrial tractors	102,760
Worthington Corp.	4,064,141	Power plants, pumping . . .	573,200
Le Tourneau-Westinghouse	3,376,287	Heavy earthmoving	467,250
Mack Trucks, Inc.	2,750,000	Motor trucks	765,000
Blaw-Knox Co.	2,403,844	Construction, steel equip. .	12,580
Babcock & Wilcox Co. .	2,236,268	Electric power, steam boilers	184,100
Bucyrus-Erie Co.	1,700,000	Power excavators, cranes.	185,000
Baldwin-Lima-Hamilton. .	1,600,000	Construction	306,000
Harnischfeger Corp. . . .	1,537,718	Industrial, construction . . .	404,500
Joy Manufacturing Co. .	1,352,500	Mining, well-drilling,	
Dresser Industries	1,300,000	power	105,000
The Marion Power Shovel Co.	1,200,000	Engines, compressors	315,000
Yale & Towne Mfg.	866,982	Excavating	82,000
The Galion Iron Works. .	862,598	Fork lift trucks, tractors. .	22,700
		Motor graders, rollers. . . .	265,598
Chain Belt Co.	750,000	Industrial, construction . . .	120,000
The Thew Shovel Co. . . .	727,278	Power shovels, cranes. . . .	274,700
Ellicott Machine Corp. . .	583,344	Dredging	75,000
Barber-Greene Co.	525,000	Paving, construction	170,100
Kenworth Motor Trucks. .	318,641	Trucks, trailers	126,000

which exist in this market, the bank has set up an exporter credit program. This arrangement makes it possible for a supplier to come to the bank directly for a loan, without which an overseas firm might not be able to purchase his equipment. Loans can be requested on a case-by-case basis, a method which generally has been used for financing the export of generating equipment.

In addition, the bank authorizes credit lines to U. S. suppliers. A credit line essentially is an assurance from the bank that a supplier will be able to obtain a specified sum of capital, should he need it.

However, as Roland Sawyer, special assistant to the directors explains, the credit line itself is primarily an advertising feature which helps a supplier to get more orders overseas. A supplier who does not have a credit line is equally as eligible to receive a loan. Even with a credit line, a supplier does not automatically receive a loan, unless it first has been approved.

As can be seen in the table on this page some of the largest U. S. suppliers currently are utilizing the bank's exporter credit line program.

This abundance of large firms is to be expected, since the size of a credit line is based on a supplier's volume of business over the past three to five years.

To assist the smaller companies who do business with the bank, the directors are revising parts of the exporter credit program. For the first time, the bank will consider financing completed export sales: This change is intended to meet situations in which an exporter must close a deal before he can obtain the bank's approval for financial assistance.

Small loan application forms, some for $1,000, are being processed. This is designed to encourage smaller companies to ask for assistance. It will speed approval of such loans.

• **Looking ahead**—What future trends does the bank foresee? First, expansion of its capital stock through greater participation of institutional investors in Eximbank loans. The Bank expects that by encouraging participation of insurance companies, pension funds, and endowment funds it will be better equipped to meet the evergrowing demand for loans. In the past, commercial banks have been small, but active participants in the bank's transactions —especially in the financing of equip-

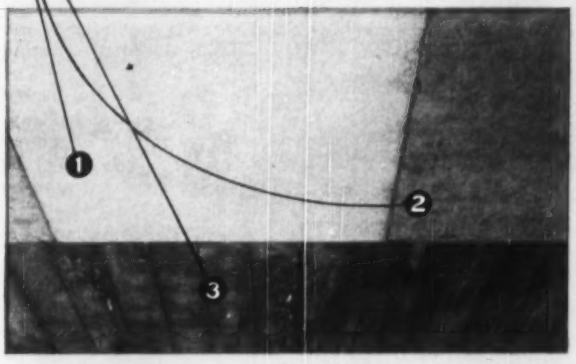
3 reasons why PLYGLAZE® high-density* overlaid plywood outperforms any form material on the market

1. FORMS SMOOTHER CONCRETE

Hard, glossy-smooth fused resin-fiber surfaces form flawlessly smooth concrete, with no trace of grain pattern. Unretouched photo shows marked difference in appearance quality of concrete cast against PlyGlaze, ordinary plywood and shiplap.

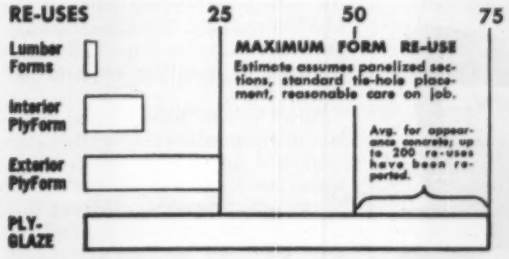
RELATIVE APPEARANCE OF CONCRETE

	Up to 50% of Max. Re-Use	Up to 100% of Max. Re-Use	Where to Use
1. PLYGLAZE	Excellent	Good	For smoothest concrete, maximum re-uses
2. PLYFORM	Good to Fair	Fair to Poor	For fairly smooth concrete, multiple re-uses
3. LUMBER	Poor	Very Poor	Where appearance and re-use not important



2. GIVES MANY MORE RE-USES

PlyGlaze's tough, hard surface stands up under hundreds of pours. With reasonable care, you'll easily get 50 to 75 re-uses. Actually over 200 have been obtained—and even then PlyGlaze continued to form good looking concrete.



3. HELPS CUT COSTS TWO WAYS

A. TIME & LABOR SAVINGS—Sharply reduces rubbing and finishing labor. Ceiling slabs can be painted direct, eliminating expensive plastering. PlyGlaze also cuts form construction, erection and stripping time. High re-use factor eliminates form reconstruction during job.

B. LOW COST PER USE—Even when cost is sole criterion, greater number of PlyGlaze re-uses frequently more than make up for higher initial cost, particularly where costs can be amortized over 25 or more pours.

COST PER-SQUARE-FOOT-PER-USE

No. Re-Uses ➤	1	10	25	50	100	200
PLYGLAZE	$0.375	.038	.015	.008	.004	.002
Exterior PLYFORM	.234	.023	.009	Gives Max. 25 Re-Uses		
Interior PLYFORM	.218	.022	Gives Maximum 10-12 Re-Uses			
LUMBER	.110	Gives Maximum 2-3 Re-Uses				

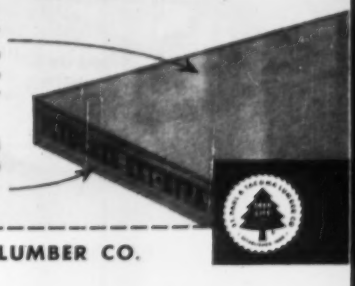
Estimates based on 30 month average for prices quoted by St. Paul & Tacoma for following material delivered in Chicago: ¾" PlyGlaze; ¾" Ext. & Int. PlyForm, mill oiled, edge sealed; 2 & btr. 1" green Douglas fir or hemlock.

POINTS IN BRIEF

- Has the strength, workability and adaptability of ordinary plywood.
- Strips easily; the non-absorbent surfaces will not stick to the concrete.
- No oiling is needed between the pours other than to facilitate cleaning.
- Overlay will not soften or come loose. Unharmed by alkaline reaction.
- Overlay minimizes moisture pickup and the resultant loss of rigidity.

Hard, glossy, translucent high density* fused-resin fiber overlay bonded to both sides of panel. Resin content controlled to give exact amount of hardness and wear resistance required for form work.

Base panel is top quality DFPA-inspected solid core Exterior fir plywood. Available in all standard sizes, thicknesses.



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Dept. RN, Tacoma 1, Washington

Please send the material checked:

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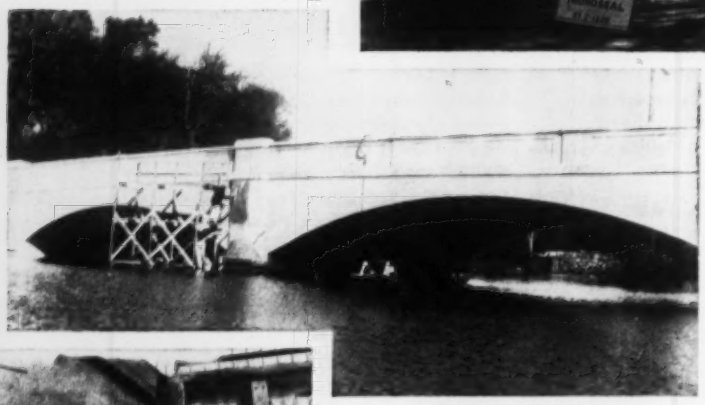
City..... Zone..... State.....

*HIGH DENSITY (glossy, translucent overlay) is special concrete form panel. MEDIUM DENSITY overlay (opaque with texture similar to drawing paper) is paint grade; not for form work

It's *New Again* with THORITE and THOROSEAL

Freeze-thaw cycle following water and moisture penetration, also swelling of reinforcing rods from moisture contact, cause masonry destruction.



BRIDGE OVER CONCORD RIVER
ROUTE 3, BELLERICA, MASS.

Workmen on scaffold patch spalled and cracked concrete with THORITE and seal surface with THOROSEAL.

Area at left chipped to sound masonry. It will then be patched with THORITE *Nonshrink, Non-slump 20-Minute Set Patching Mortar*, without necessity of costly forming, finished by application of Thoroseal.

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STANDARD DRY WALL PRODUCTS, INC.
NEW EAGLE, PENNSYLVANIA • CENTERVILLE, INDIANA

. . . What's ahead for Ex-Im

ment credits. Although no set pattern exists, a commercial bank usually purchases the bank's 60% share of an equipment credit or a part of it. Thus far $24.4 million in loans have been disbursed by private banks for equipment exports of the construction industry.

Secondly, the bank anticipates continued growth in foreign markets, with industrial expansion in such countries as Japan bringing requests for Eximbank loans. In addition, two loans for electric power expansion currently are under consideration—one in Australia, and one in the Philippines. The one area which the bank believes will be less significant is the Middle East, due to problems of credit worthiness and dollar repayment.

Facts and figures can only suggest the tangibles. Peixoto Dam in Brazil, completed through a $95 million Eximbank loan and dedicated in May, represents one of these. Furthermore, it is clear that U.S. suppliers, contractors and the Export-Import Bank reciprocally have contributed to each other's financial well-being. The bank's main function has been to boost the U.S. export trade. But in so doing its own supply of capital has been nourished and replenished—$435 million in reserves have been accumulated during its 22 years of activity.

However, together with the expansion of U.S. trade and a surplus of capital on the budget sheet, the economic development overseas which results inevitably from Ex-Im financing must be counted in the profits.

A loan to Costa Rica financing the export of land-clearing and road-building machinery is just one example. This machinery is vital to a group of Italian farmers who have resettled in an area which previously was an uninhabited forest region. Since 1952, when four families arrived, new settlers have cleared 3,750 acres of land and are engaged in raising their own crops and produce.

They have built housing and community facilities in a village which contains a power plant, school, chapel, and dispensary. But to develop this settlement even further, they require the transportation facilities of access and feeder roads. The equipment to be purchased with the Eximbank loan will be used to complete construction of these roads.

Small as this loan of $161,000 may be, it demonstrates how the Export-Import Bank and the construction industry working together can add vigor to the interdependent cycles of finance and trade and accelerate the efforts toward economic progress everywhere in the world.

Roebling Royal Blue Wire Rope will **wear** and **wear** and **wear**!

This working quality means longer service life on *your* job. Add to this the fact that Royal Blue is stronger than the strongest rope you have been using and you have two excellent reasons why it has enjoyed faster acceptance than any wire rope in Roebling's history. Your distributor or Roebling Sales Office will give you the complete story, or contact John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING

Distributors, Branches and Warehouses Throughout the Country—Subsidiary of The Colorado Fuel and Iron Corporation

Introducing the greatest advancements made to date in tractor mounted backhoes

Sherman Products announces all new digger with increased output to speed digging and reduce costs. Many new features make this Model 54F faster with less maintenance and longer life

HOLES IN THE GROUND—that's what you are really buying when you purchase a backhoe. You aren't interested in a group of parts as such. You are interested in the capacity to dig holes at the lowest possible cost—so that you can sell those holes at a profit.

This means you need a fast, dependable digger with a long service life and low maintenance.

Now, Sherman presents an *all new* power digger that meets these requirements! It has advanced features that make it faster than any comparable backhoe . . . it is so sturdily constructed that it will outlast any comparable backhoe . . . it is so engineered that it requires less maintenance than any comparable backhoe.

Look over the list of Sherman features and you'll see for yourself.

Every single one of these features has been thoroughly tested. In actual digging in all types of soil conditions including hard, frozen clay and sticky gumbo, the Sherman completed 500,000 cycles—the equivalent of two years of normal operation—and was still going strong.

Compare the new Sherman with any tractor mounted backhoe. Make sure that the digger you buy has *all* of the features you need.

Don't take our word for it. Put the Sherman on any job and *clock it* with a stopwatch. Prove to yourself that the Sherman saves you money by producing more work per dollar invested in time, equipment, maintenance, and manpower.

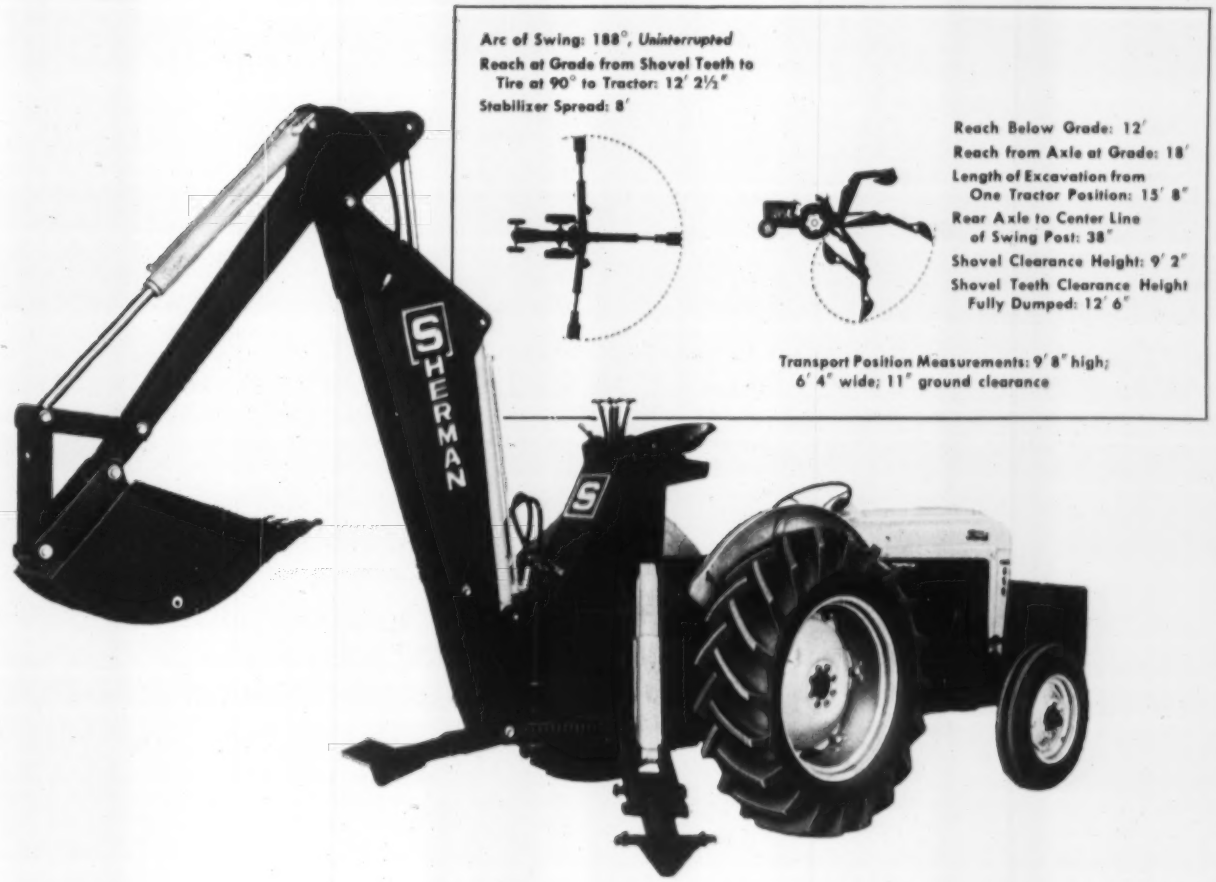
The all new Sherman breakaway capacity of 9000 lbs. is greater than any comparable backhoe. This revolutionary Sherman development means more power and faster digging.

The all new Sherman is fast and powerful because short hydraulic lines reduce friction power loss. And the exclusive pump drive in combination with the Sherman Planetary Step-up Transmission contributes to greater speed than conventional systems, as does the outstanding pump pressure of 2000 psi.

The all new Sherman has a wide work radius and a long reach—an **uninterrupted** arc of swing of 188° together with a 12 ft. reach below grade and a loading height of more than 9 ft.

The all new Sherman holds steady on sloping or uneven ground because the hydraulic stabilizers, individually controlled, give both lateral and angular support and the 12″ by 14″ foot plate assures maximum ground contact.

The all new Sherman can be dismounted in


Arc of Swing: 188°, Uninterrupted
Reach at Grade from Shovel Teeth to Tire at 90° to Tractor: 12' 2½"
Stabilizer Spread: 8'
Reach Below Grade: 12'
Reach from Axle at Grade: 18'
Length of Excavation from One Tractor Position: 15' 8"
Rear Axle to Center Line of Swing Post: 38"
Shovel Clearance Height: 9' 2"
Shovel Teeth Clearance Height Fully Dumped: 12' 6"
Transport Position Measurements: 9' 8" high; 6' 4" wide; 11" ground clearance
SHERMAN

a few minutes by simply removing six pins and four bolts.

The all new Sherman has an efficient, all purpose shovel with quick adjustment for straight walls or high loading; full rollback for heaped, non-spilling loads; tapered side cutting edges to prevent binding; replaceable teeth.

The all new Sherman is comfortable because the seat is adjustable and the full, anti-skid deck permits leg position changes.

The all new Sherman lasts longer, costs little for maintenance. Here are a few of the reasons:

- Main and swing frames are heavy-duty steel plate, weldment construction.
- Full length, box construction sub-frame increases tractor rigidity and acts as a spring-like shock absorber.
- Reinforced, "stress-design" box construction boom with crowd cylinder operating inside for complete protection.
- Heavy roller chain couples the twin, single acting, swing cylinders to post sheave.
- Reinforced, "stress-design", box construction dipstick.
- Hydraulic reservoir is oversized for maximum oil cooling. Its central location and independent suspension eliminate possibility of leaks due to operating stresses.

Yes, the facts prove that the Sherman Power Digger is today's best buy in tractor mounted backhoes.

Sherman Power Diggers are Engineered Exclusively for Ford Tractors and are Sold and Serviced by your Ford Tractor Dealer

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Sherman

PRODUCTS, INC.

ROYAL OAK, MICHIGAN

POWER DIGGERS • FRONT END LOADERS • FORK LIFTS

Genuine SP Products®

WIRECO Super-Flex Scraper Cable gives SAFE, STEADY SERVICE!

Scraper service deals severe punishment to wire rope. Nobody knows this better than the construction people who are faced with the continual need for a scraper rope that withstands sharp bends, rubbing on sheave housings and fouling on drums that cost yardage and profit!

Because of its construction, WIRECO Super Flex is

Flexible! . . . to take the sharp bends and abuse in stride! It's pliable for easy handling . . . will wind smoothly on drums. Because of this freer movement through sheaves and drums it affords faster handling in loading and unloading . . . means more yardage moved in less time with less effort . . . and, naturally, a better job profit!

Abrasion resistant! . . . to perform under all kinds of adverse conditions! The stamina and staying power of Wireco and Brown Strand are bred into the Super-Flex! It thrives on rough going . . . gives you longer, more satisfactory service life!

In TODAY'S CONSTRUCTION BUSINESS the wire rope you use may be the difference between capital success and capital failure. With so much riding on the rope that equips your scraper or dozer, it makes sense to buy the best scraper rope in the business. Wireco has the best . . . ENGINEERED to the demands of YOUR job!

ASK YOUR WIRECO DISTRIBUTOR!

WIRECO SCRAPER CABLE comes conveniently wound on scraper reels ready for fast easy mounting!

WIRE ROPE CORPORATION OF AMERICA, Saint Joseph, Missouri

A Skyscraper Crammed With Innovations

The Seagram Building in New York City has a glass and bronze exterior, bolted steel framing with diagonal wind bracing and new type lighting and air conditioning.

Newest addition to New York City's changing midtown skyline is a slender glass and metal prism—almost transparent—which soars 38 stories above Park Ave., at 52nd St. When construction is completed this fall, it will provide 530,000 sq ft of air-conditioned office space.

The tower, which is being built for Seagram companies which will occupy about one-fourth the office space, incorporates advanced concepts in architecture and engineering:

- It has no exterior walls in the conventional sense. Fixed glass windows extend from floor to ceiling in every story. Bronze mullions project in front of the concrete fireproofing of the structural steel columns, and bronze plates hide the spandrel beams.
- The Seagram Building's steel frame, rising 520 ft above the street, is the tallest office building ever erected with high-strength bolts. And it is one of the few modern skyscrapers with vertical truss wind bracing. (The 30 story Life & Casualty Insurance Co. building, Nashville, Tenn., described in ENR Sept. 6, 1956, p. 36, is another.)
- Interior illumination was designed with its effect on exterior appearance at night as an important consideration.
- A new-type air-conditioning system with low under-window units was developed to give unusual temperature and humidity control. Along the south wall, for example, perimeter areas in the upper portion, hit by the sun, may be cooled, while the lower portion, shaded by adjacent buildings, may be heated.

The $25 million Seagram Building is one of about a dozen tall office buildings now under construction in the Grand Central area of Manhattan. Nearly all feature spectacular architecture (ENR Jan. 17, p. 40) and were designed with the principal objective of attracting tenants. The House of Seagram design especially aims at providing future tenants a maximum of amenities, both in rented spaces and public areas.

The 38 story structure, topped by two stories of mechanical rooms, occupies about two-thirds of a 200x300 ft site between 52nd and 53rd St. on the east side of Park Ave. A half acre fronting on Park Ave. will be developed into a plaza with pink granite walks, equipped with a subsurface snow-melting system, pools and extensive planting.

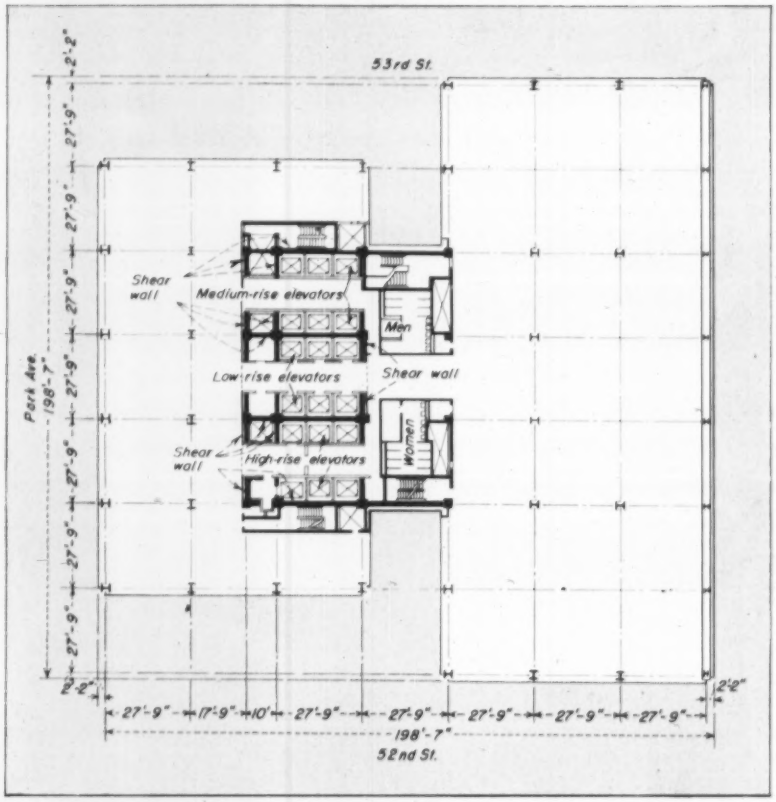
• **Tall and slim**—The base of the building with an area of about 35,600 sq ft, is nearly square. A section along 52nd St. and one along 53rd St. rises only four

stories with a 10 story section between, leaving a slender T-shaped prism to extend the full height.

The tower is approximately 140x110 ft in plan. (Addition of a 27 ft 9 in. square bay at two corners would convert the T into a rectangle.) It contains at the base the glass-enclosed entrance to the building from the plaza. The glass lobby is set back one bay on the 52nd and 53rd St. sides.

Service facilities, including elevators and stairs, are concentrated in the center of the building, freeing the perimeter in the upper stories for office use.

The building has three levels underground. The first provides space for a restaurant, shops and other building service areas, rentable area. There is a truck entrance on 52nd St. to underground unloading docks and also an entrance on 53rd St. to a ramp extending to a 130 car garage on the second underground level. Part of the third level provides additional rentable area. The rest of the second and third levels is allocated to mechanical equipment rooms and storage space.



TYPICAL LOWER FLOOR of the Seagram Building has centrally located elevators enclosed in concrete shear walls that carry part of the wind load.

• **Tallest bolted frame**—Steel for the tower was delivered without the necessity of unloading in the street. Bethlehem Steel Co. brought the steel into the plaza on a timber roadway constructed for the purpose.

At the start, four derricks erected the frame. Prefabricated steel grillages were set on concrete footings in units weighing up to 15 tons. The bottom columns, weighing as much as 26 tons, were erected in single-story lengths of about 12 ft by a single derrick, as were lighter columns located farthest from the derrick. In the upper stories, however, the derricks erected 2 story lengths (up to 27 ft), since column weights were within the capacity of the equipment.

Three derricks were used above the fifth floor, and two above the eleventh. Hoisting engines were raised to the 18th floor when the steel reached the 20th, because of the advantages of keeping the engines close to the derricks.

Field connections to columns, beam-to-beam connections within 3 ft of columns and connections of beams supporting machinery were made with high-strength bolts and hardened washers torqued with pneumatic wrenches. Other field connections were made with unfinished bolts.

About 137,000 high-strength bolts, ranging in diameter from $\frac{7}{8}$ to $1\frac{1}{4}$ in., were used to connect the 13,450 tons of steel in the frame. For the bolting operation, Bethlehem assigned an average of six men per derrick. Crews of one or two men inserted bolts, and one or two others tightened them.

• **Walls and trusses resist wind**—Because of the slenderness of the tower, the size of the framing would have had to be increased substantially if wind loads were to be resisted only by conventional wind connections of girders and columns. So the structural engineers called for diagonal bracing in several column lines from the foundations to the 29th floor. And up to the 17th floor, the bracing is embedded in 12 in. thick concrete shear walls.

In the narrow direction of the tower, the bracing lies in two walls between stairs and elevators and in two walls between elevator shafts. In the perpendicular direction, the bracing is in the end walls of the elevator shafts.

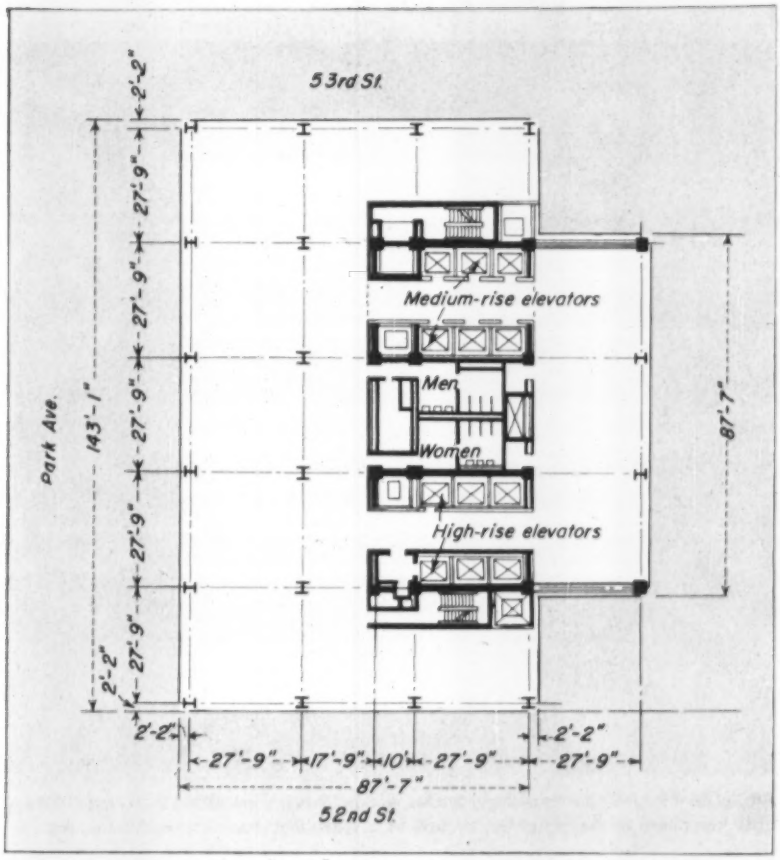
Double angles generally were used for the diagonals. Gussets were shop riveted to the columns, and beams and angles were connected to them in the field. (In the basement, where angles were as large as 9x4x1 in., erection was slowed by the difficulty of slipping them on the gussets.)

In addition to the columns and bracing in the shear walls, exterior columns and all beams were encased in concrete. Interior columns were fireproofed with gypsum block.

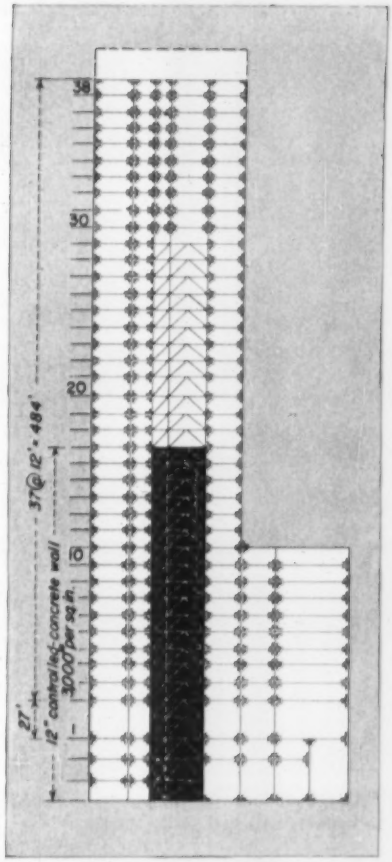
The floors generally consist of a 4 in. thick foamed-concrete structural slab, 3 in. of lightweight concrete fill and 1 in. cement finish. Underfloor electrical ducts, including power, telephone, low-voltage intercom and closed-circuit television cables, are incorporated in the fill.

• **Shear walls threaten job progress**—Concreting operations ran into some unforeseen difficulties because of the shear walls. Rising 19 stories, from the lowest cellar to the 17th floor, this concrete spine presented a major challenge to the concrete subcontractor, Pavarini Construction Co., because if wall construction was not properly timed with floor concreting, overall progress of the project would be slowed. Pavarini realized at the outset that failure to advance the walls properly would result in serious delays in installation of temporary elevators, temporary power and mechanical risers.

The subcontractor's analysis indicated that the area of wall surfaces to be formed was equal to about 40% of the floor-form area and that the amount of wall concrete totaled about 35% of



TYPICAL UPPER FLOOR also is laid out with elevators in the interior, to keep the glass-enclosed perimeter free for office use.



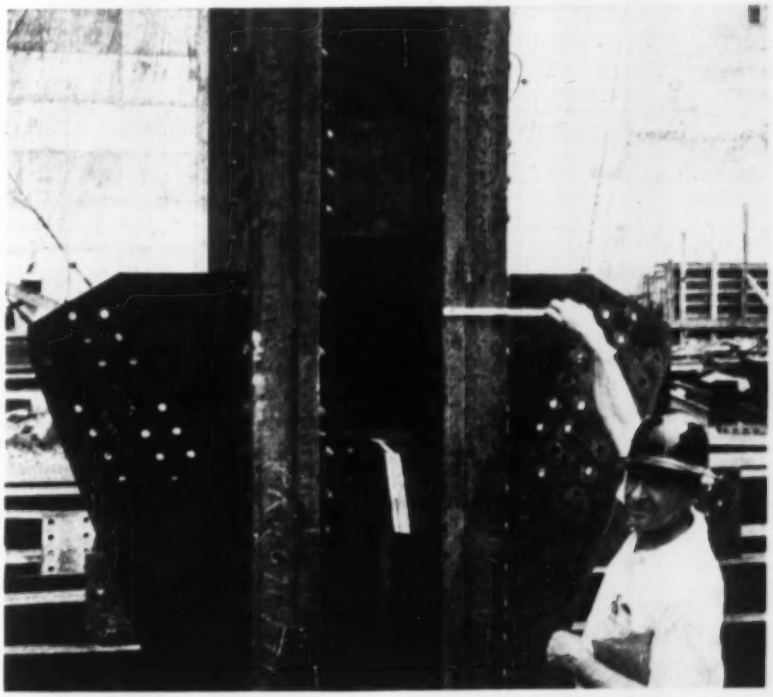
STEEL FRAME is braced with vertical trusses embedded in elevator walls.

the floor concrete. Considering this and the fact that the walls were to be built around elevator and duct shafts and along spandrel beams for 28 ft on two street fronts, Pavarini concluded that it would be impossible to concrete walls and floors in sequence.

Various forming and pouring schemes were studied to find one that would permit the greatest speed in wall construction. In these studies, consideration was given to use of slip forms in the shafts and at the street walls. But this method was ruled out because heavy steel beams at each floor, protruding elevator brackets and projections of the spandrel beams interfered.

Pavarini finally decided that to carry out the concreting operations expeditiously his work force should be divided into three groups—one for spandrels, another for walls and the third for floors.

The scheme adopted for wall construction called for prefabricated forms made of plywood panels that could be swiftly positioned, special through-wall ties and installation in advance of the formwork of reinforcing bar cages, which were tied to the structural steel. Work in the temporary elevator shaft



THICK FLANGES of bottom columns were equipped with large gusset plates for connections with diagonals of the vertical wind trusses.

MULLIONS for the facade were bolted to brackets anchored to the floors.

BRONZE FRAME incorporating a bronze spandrel but not yet glazed with heat-absorbing glass was rolled to the perimeter, hooked to a winch line from above and the the . . .

was pushed to assure elevator service for all trades as scheduled. With this approach, Pavarini was able to complete the walls in less than 17 working days after forms for the last floor at which shear walls were incorporated were stripped.

Pavarini also speeded the concreting of the 32 in. spandrel fireproofing by prefabricating the spandrel forms. This was economical because nearly all the spandrels are the same size.

Since this building has no backup wall, which could absorb inaccuracies in exterior alignment of the concrete, these forms had to be set with unusual accuracy to provide clearance for the bronze spandrel panels. Pavarini supported the forms on 3x4's hung on inverted-U steel hangers slipped over the spandrel beams. The exterior side forms, with inserts for forming a continuous flashing reglet, were held in place at the top by metal wires bent over the top flange of the spandrel beams. The soffits were tied back with wood diagonals.

An insert also was placed in the forms to provide support for venetian blinds over the windows.

• **Installing an unusual facade**—As concreting operations advanced into the upper reaches of the skyscraper, installation of the bronze exterior began. Bronze mullions were erected first, in vertical lines 4 ft 7½ in. apart for the full height of the tower. Then, one-story high bronze frames for the windows, prefabricated with bronze spandrels in place, were fastened between the mullions. (Serpentine marble is used on the sides of the tower's T-stem.)

Bronze was selected for the exterior because of its color, both initially and after aging; its corrosion resistance and its extrusion properties, which permit extruding the mullions with sharp edges—an effect desired by the architects. Cost was not an important factor because with floor-to-ceiling glass windows a relatively small percentage of the exterior is metal.

The mullions and window frames are made of architectural bronze—56% copper, 41.5% zinc and 2.5% lead—which has desirable formability properties for extrusions. The spandrels are made of Muntz metal—60% copper and 40% zinc—which combines high strength with low ductility and matches the color of the extrusions. About 1,600 tons of bronze extrusions and plate were required for the exterior.

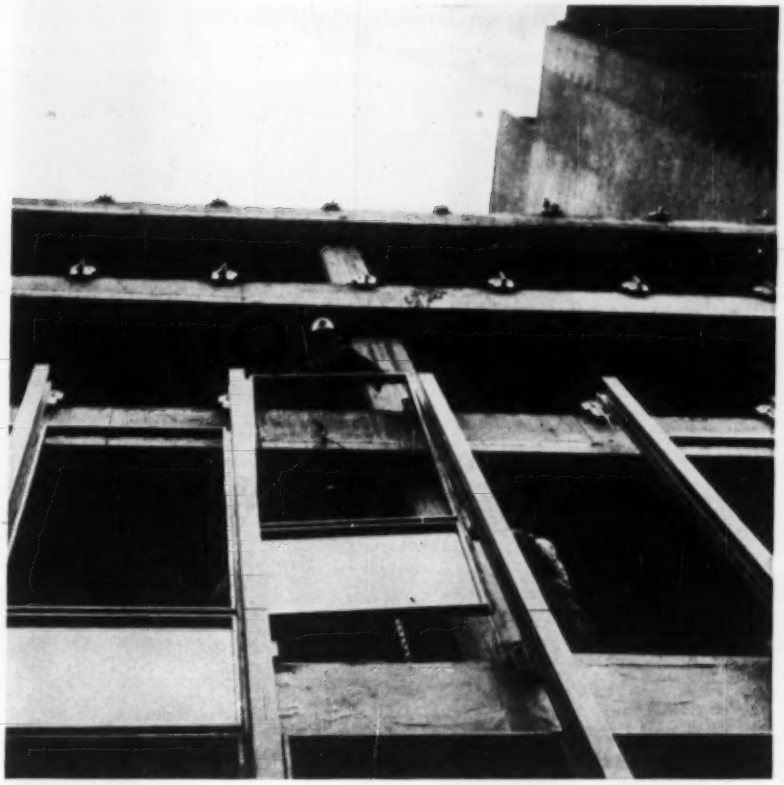
The mullions are I-shaped, with 4½ in. flanges and 6 in. depth. Largest bronze extrusions ever produced, they were turned out in straight lengths of up to 26 ft 4 in. (Previous maximum size could be inscribed in a 6 in. dia. circle.)

To prevent buckling and assure even light reflection, the spandrels were rolled to close tolerances from plate ⅛ in. thick. They range in height from 2 to 4 ft and in width from 3 to 4 ft.

Since the 12 ft high bronze frames are set between the mullions, the vertical members had to be accurately spaced. General Bronze Corp., fabricator of the bronze exterior, made use of a steel templet to prevent cumulative errors in locating the center of the mullions. Fabricated in 26 ft sections, the templet was channel shaped and used with the flanges pointing up. Holes were drilled in the web at the correct mullion spacing.

For the connection of mullions to spandrel beams, a 1-in.-thick steel plate was welded at mullion locations to the top flanges of the beams. The plate extended outward from the flange in a horizontal plane.

The templet sections were laid continuously around the perimeter of the building on each floor. Screws acting against yokes on the exterior columns permitted adjustment of the position of the templet with great accuracy. With a center punch developed to mark



STORY-HIGH PANEL, supported by a mobile winch, was swung into position between the bronze mullions. The winch line was attached to temporary plates on the tunnel frame.

MEN operate from inside the building in placing the panel.

automatically the center of the templet holes, locations were punched in the top of the plates where studs were welded for attachment of brackets that anchor the mullions.

For adjusting the clearance between the mullions and the outer face of the spandrel beams, the bracket holes for the studs were slotted. The brackets were made long enough for attachment of the mullions that begin and terminate at each floor.

Several mullions in each story were preset to give alignment for the rest. Piano wire was stretched 4 ft above the floor between the backs of those mullions as a guide. Shop drilled holes in the mullions still to be set were aligned with the wire to assure sills at the required height completely around the building. Next, continuous copper flashing was placed above the windows in every story. Then, the 12 ft high window frames, which had been stored on each floor, were installed from the inside of the building.

A small mobile winch on the floor above supported the frames while they were fitted between the mullions. Metal plates were temporarily screwed to the sides of the frames for attachment of the lifting lines. After being positioned, the frames were screwed to the mullions.

When construction operations are completed, dirt will be removed from the bronze and lemon oil applied.

• **Pinkish glass**—Fixed panes of heat-absorbing glass were installed in the frames. This glass has a pinkish gray tint to blend with the bronze. About 122,000 sq ft of it was used.

Because of the floor-to-ceiling windows, a heating and cooling system with unusually flexible control was developed to counteract wide variations in temperature around the building in all seasons.

• **Latest in air conditioning**—The tower is divided into interior and perimeter zones, both served by equipment on the roof and in the basement. Cooling for the system is accomplished with two steam-turbine-driven centrifugal refrigerating machines, each of 1,600 ton capacity, located on the roof.

Six shafts are provided in the building's utility core for air-conditioning ducts and auxiliary piping. The supply air passes through the shafts in ducts and conduits, while the shafts themselves act as ducts for return air. The shafts are lined with plastic to reduce skin friction.

High-pressure conduits about 9 in. in diameter distribute supply air in each

ATTACHMENT of frame to mullions with screws completes the installation.

story. Located above suspended ceilings, these conduits pass through holes in the beams on the way to the building exterior, then up through the floors on a slant in 4 and 5 in. dia sections at the perimeter to feed under-window units.

Interior zones are fed with air from a double-duct system. One duct system carries warm air, the other cool, and the air is blended in mixing chambers be-

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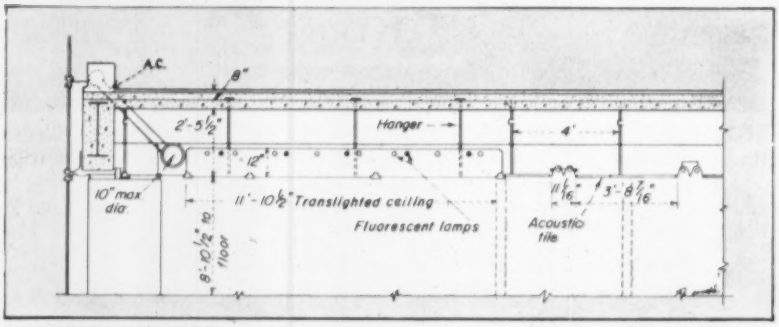
. . . Novel lighting in bronze skyscraper

CEILING in offices is translighted, except for a strip at windows. Vincent McAvey, contractor's mechanical engineer, points to return-air inlet in the strip.



LIGHTING FIXTURES, recessed in suspended ceilings, consist of large steel boxes with plastic underside at windows (left) and flangeless troffers (right).

WINDOW UNITS for air-conditioning are only 12 in. square. They are fed air through the supply duct marked A.C. in photo and drawing above.

fore entering office areas through ceiling diffusers. Ducts are located in the plenum between floors and suspended ceilings. The plenum also is used for carrying back return air.

Perimeter zones are fed air that passes through newly developed 12 in. square under-window units. Each unit consists of a sound attenuation chamber —necessary because air is supplied under high pressure; a finned cooling and heating coil, supplied with hot water or

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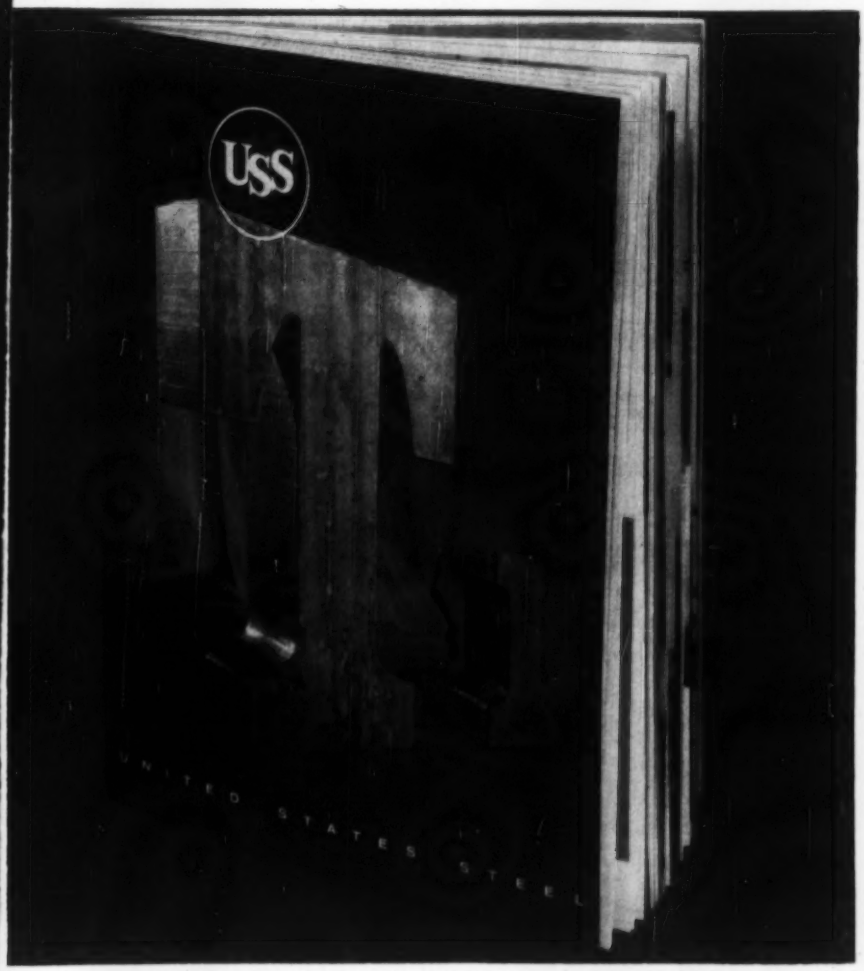

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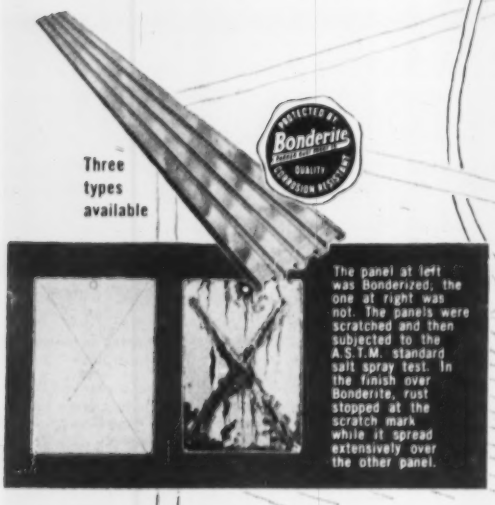
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PROTECTED BY Bonderite QUALITY CORROSION RESISTANCE
The panel at left was Bonderized; the one at right was not. The panels were scratched and then subjected to the A.S.T.M. standard salt spray test. In the finish over Bonderite, rust stopped at the scratch mark while it spread extensively over the other panel.

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. . . Bronze Skyscraper

chilled water, as desired; distribution nozzles, and a metallic lint screen—all within a louvered enclosure. Temperatures can be controlled by turning a knob on a thermostat located on the central unit of the three in each half bay. Banks of these units on the southern exposure have special capacity to handle intermediate-season cooling requirements.

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• **Lighting for effect**—The tower also is divided into interior and perimeter zones for purposes of illumination.

In the interior zones, ceilings consist of acoustic tile supported on T-bars and continuous lines of recessed, flangeless 1x2 ft and 1x4 ft fluorescent fixtures.

In contrast, the perimeter zone, for a distance of about 14 ft from the windows, has a translighted ceiling, except for a 2 ft wide strip of acoustic tile at the windows where return air is picked up.

Above a translucent plastic diffuser panel, which spans between 4 ft square aluminum revealed grids, are fluorescent tubes in steel boxes. Suspended from the floor slab above, these boxes are 4½ ft wide, 12 ft long and 1 ft deep.

A special feature of the translighted ceiling arrangement is the inclusion of auxiliary tubes and circuits in each fixture, with automatic time clock control for the complete system, to permit display illumination for nighttime operation. The aim is to create a low-intensity glow around the whole tower. This auxiliary illumination is operable only by the building management, so that the continuity of the display cannot be interrupted at any section of the facade.

The tower will be served by 18 automatic, operatorless elevators. Equipped with 8 ft high, single-opening doors, the cabs will have walls made of bronze woven wire and stainless steel plates.

The building was designed by Mies van der Rohe and Philip Johnson, with Kahn and Jacobs as associate architects. Severud-Elstad-Krueger were the structural engineers; Jaros Baum and Bolles, mechanical, electrical engineers.

George A. Fuller Co. is the general contractor. General direction of construction is under M. J. Grogan, vice president; T. A. Hood is construction manager and L. N. Redding, superintendent of construction.

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IN ACTUAL FIRE TESTS of 4" perlite insulating concrete walls, such as this one, the temperature of the unexposed face averaged only 159°F. at the end of 4 hours. A further advantage is found in the fact that Permalite insulating concrete has only limited expansion at high temperatures and does not tend to bulge or spall off as do concrete and plaster made with heavy, unexpanded aggregates.

MORE AND MORE, architects are designing for light weight insulating concrete curtain walls, since the many Permalite curtain wall jobs now standing have proved that Permalite insulating concrete provides adequate strength and fire protection, as well as additional acoustic and thermal insulation values.

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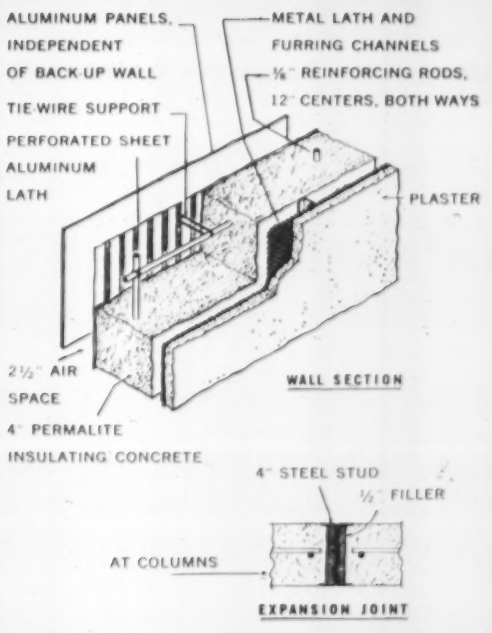

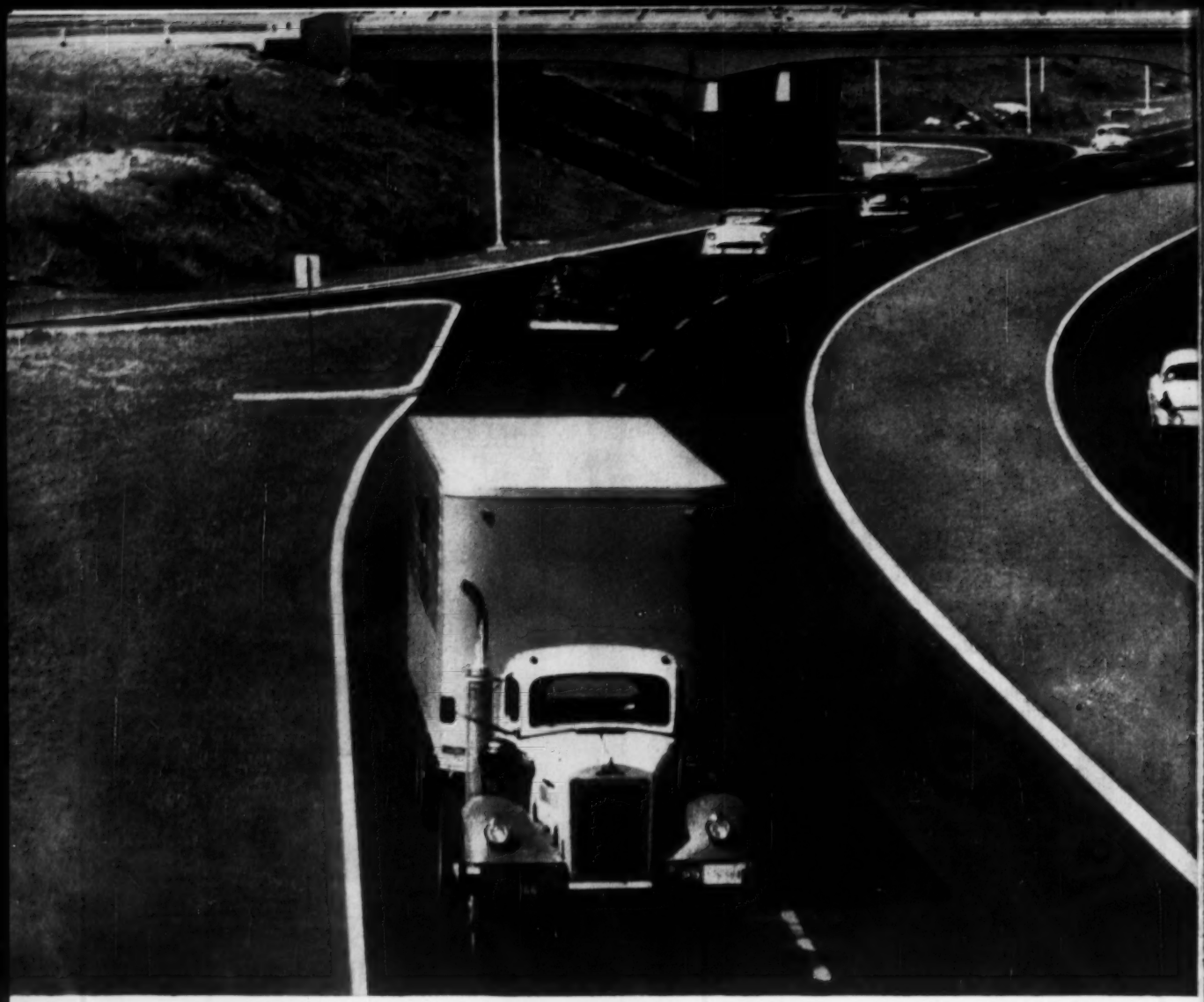

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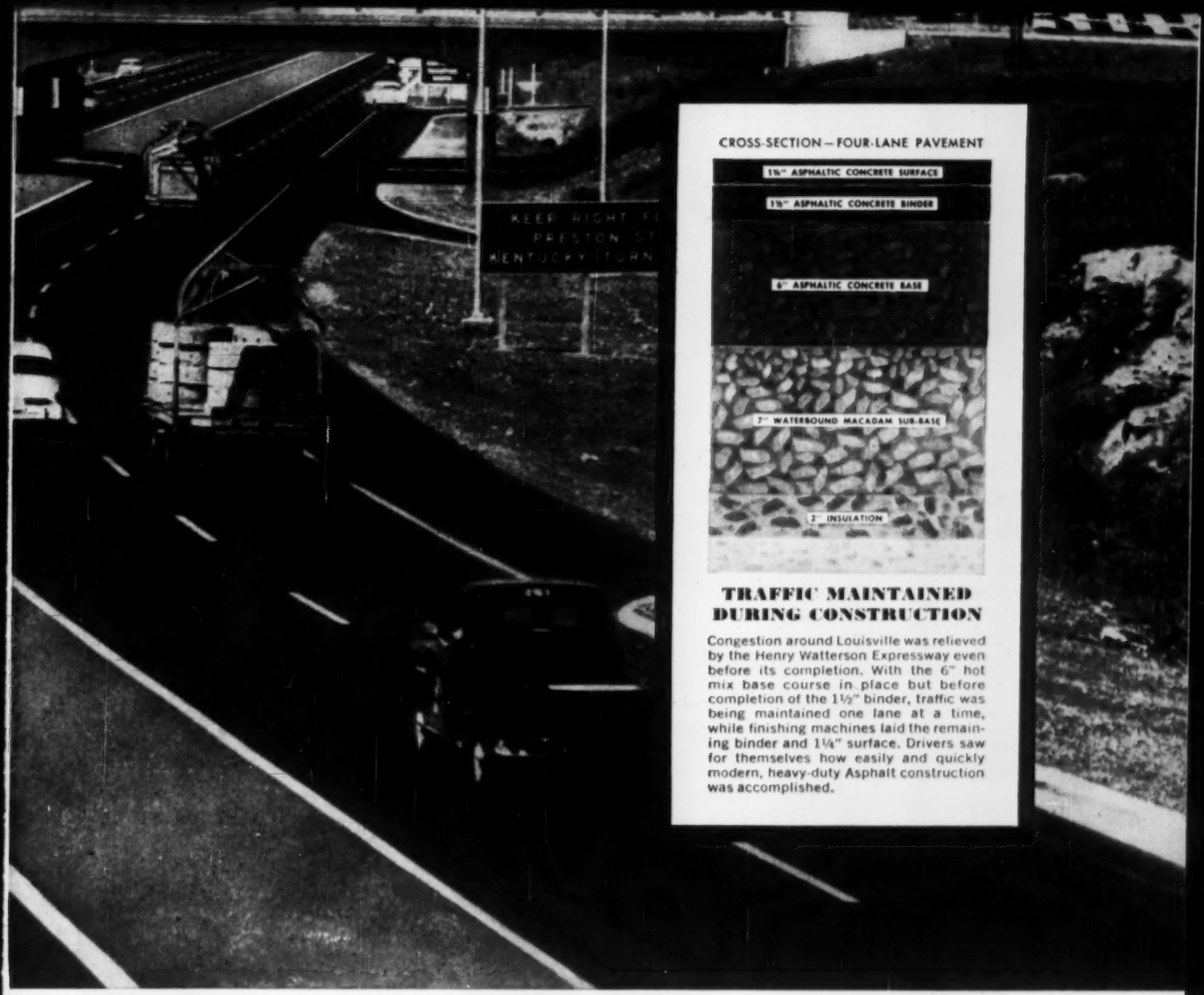

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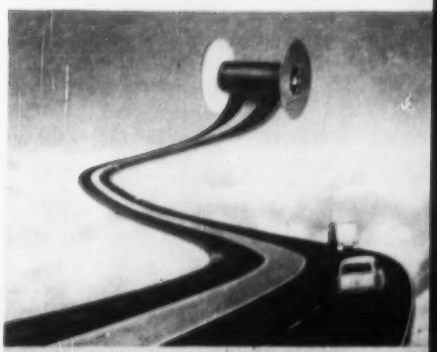

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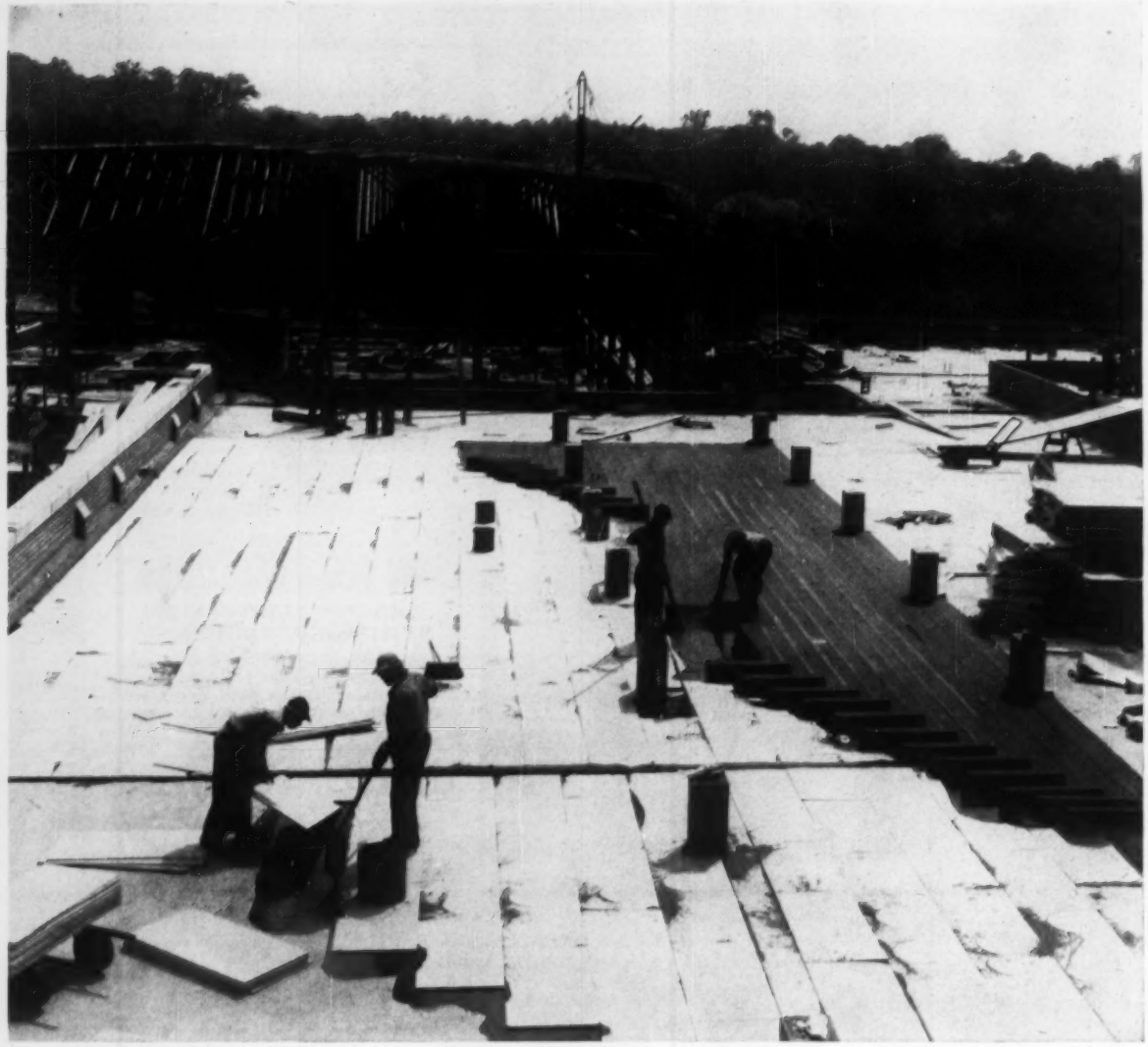
THE ASPHALT INSTITUTE, Asphalt Institute Building, College Park, Maryland



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STRETCHING more than 1,200 ft across Long Island intracoastal waterway, county-designed concrete bridge will open new beach playground.

County "Rolls Its Own" in Prestressed Bridge Design

Now stretching halfway across the clear waters of Narrow Bay—separating mainland Long Island from its barrier beach of Fire Island—is a clean, neat small bridge structure that should be a matter of pride to a large segment of the men who make up the U. S.'s front-line engineering forces.

Consider: The structure is a prestressed concrete bridge, 1,220 ft long (including a 90 ft double-leaf bascule span), to carry a 35 ft wide roadway and sidewalks, standing on precast, 24 in. concrete piles. The prestress will be carried in both directions—in the 62-ft girders longitudinally, and in the eight girder spans transversely.

Except for the bascule and the two flanking steel transition spans, the structure was designed entirely by engineers of the Suffolk County department of highways, financed entirely by the county, and is being built under the county engineer's supervision. When designed, in 1953, it was one of the U. S.' longest prestressed structures.

And it is being built for the remarkable price of $2.5 million, as a result of excellent contractor operations and cooperation with county engineers.

• **Playground entrance**—Desolate, nearly uninhabited, 35-mile long Fire Island—itself a part of a series of narrow sand barriers that form the ocean front of Long Island's south shore—offers some of the finest stretches of ocean-front beach in the United States. Additionally, it protects a shallow inland waterway for small craft that use an innumerable series of bays and inlets.

Some of the recreational advantages of parts of the barrier beach further to the west and nearer the teeming suburbs of New York City have already been exploited heavily, as at The Rockaways and world-famous Jones Beach. But Fire Island itself is at present reachable only by small boat, supports a small summer colony and is visited only by fishermen in off-seasons.

Suffolk County—one of New York State's largest, since it occupies more than half (88 miles, to be exact) of 120-mile-long, 17-mile-wide Long Island—has rather suddenly found itself in the process of becoming urbanized, its population doubling (from about 250,000 to about 500,000) in 10 years. With this growth has come a demand for more public recreation facilities.

An answer was ready at hand in county-owned Fire Island. What was needed was a means of getting there, and beach facilities.

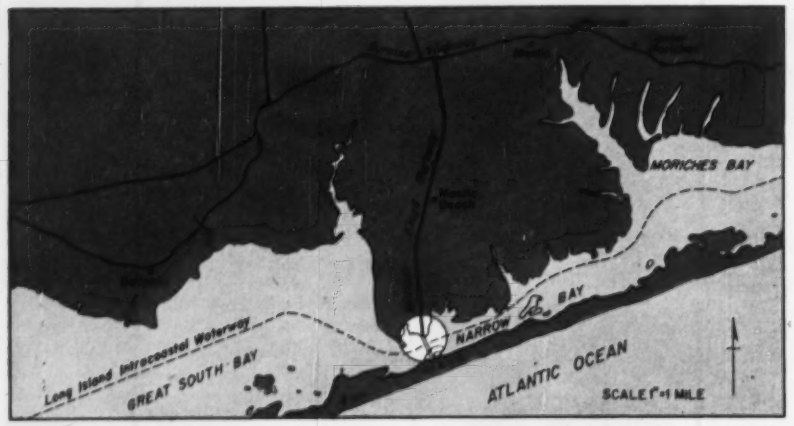
• **Do it yourself**—Much more closely akin to New England than to New York because of its long seafaring history (some of Suffolk County's centuries-old towns are real gems of New England colonial architecture), the county gave no thought to federal or even state aid.

It gave highways superintendent Albert Cass and his deputy and chief engineer, William S. Matsunaye Jr., the job of making suitable plans. They selected Smith Point, south of the summer-resort colony of Mastic Beach, as the most suitable. The site had long been under the engineers' eyes as a location for a bridge, should the occasion arise and a 4½ mile blacktop parkway had already been built to give access from heavily-travelled Montauk highway. The county board approved, and shortly thereafter authorized a bond issue that would be repaid out of tolls.

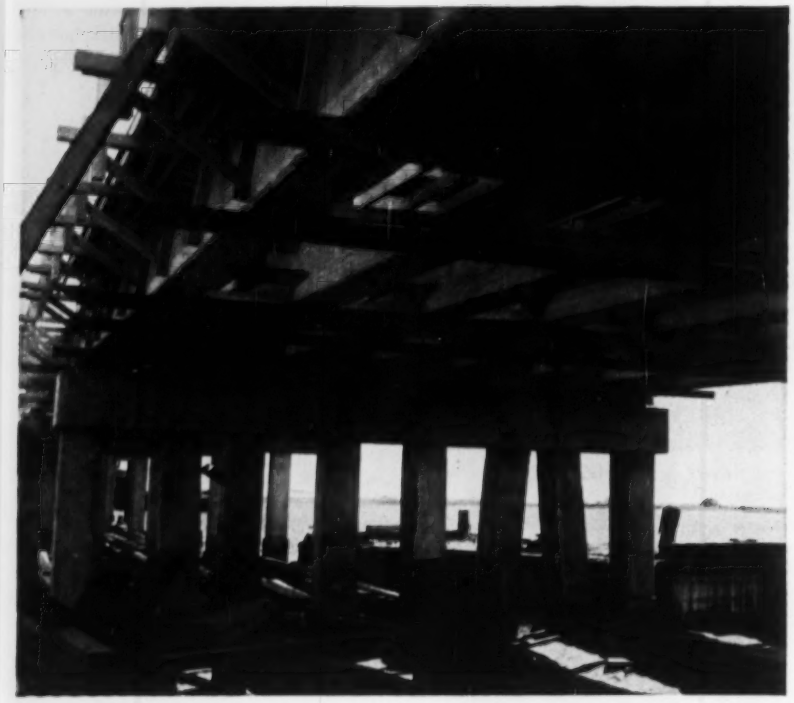
The highway department (actually a misnomer, since it is responsible for everything from construction and maintenance of county buildings, through beach erosion control to operation of a hydraulic dredge) went back to work—and ran into trouble.

The "Long Island Intracoastal Waterway" shown on marine maps as running between Fire Island and the Long Island shore is actually a very shallow channel, providing a water depth averaging about 6 ft at mean high water. To handle small-boat

. . . Bridge job is "do it yourself"



BRIDGE to Fire Island, now reachable from the "mainland" of Long Island only by small passenger ferries.



FORMWORK for 7-in. deck slab is tricky process on smooth edges of prestressed, precast beams. Beams rest on bronze rockers, atop batter-pile bents.

traffic and provide a structure easy to maintain, the original design in 1952 called for a fairly conventional reinforced concrete structure, with 65 ft spans between pile bents, and a fixed span of 110 ft over the channel, with 40 ft clearance at mean high water.

This program ran into immediate and vociferous objections from local boatmen at hearings held by the Army's district engineer. The boatmen claimed that masts on many of their vessels wouldn't fit under the fixed center span. The Army ruled that a moveable span would have to be included.

• **Do it again**—With that setback, Matsunaye and his staff began a redesign of the whole structure, to include a bascule span at center.

"We had been watching very carefully the reports in technical magazines and elsewhere on prestressing work," says the engineer, "and in particular the construction of the Walnut Lane Bridge in Philadelphia (ENR Nov. 3, 1949, p. 18).

"We wanted a concrete structure because of the location and because we can't afford a bridge that will require a lot of maintenance. We wanted a structure that would look well—wouldn't be too heavy and solid—and would lend itself to economical construction methods. We decided to go ahead with a prestressed design, since it offered advantages we were looking for and we felt we could do the job."

• **Design**—What Matsunaye's staff came up with, finally, was this:

A bridge with a total length of 1,220 ft between abutments, including the double-leaf bascule at center and two 68 ft steel-girder flanking spans. Except for the center spans, 16 of the other spans (8 on each side) were to be composed of 8 prestressed concrete girders, each 62 ft long, standing on six or eight-pile precast concrete pile bents, the 8-pile bents driven on batter to take expansion and contraction stresses from the girders and deck.

The structure was to be decked with a 7 in. concrete base slab, topped with a 1½ in. asphaltic concrete wearing course. The 2 lane roadway would be 26 ft wide, with sidewalks 4½ ft wide on either side.

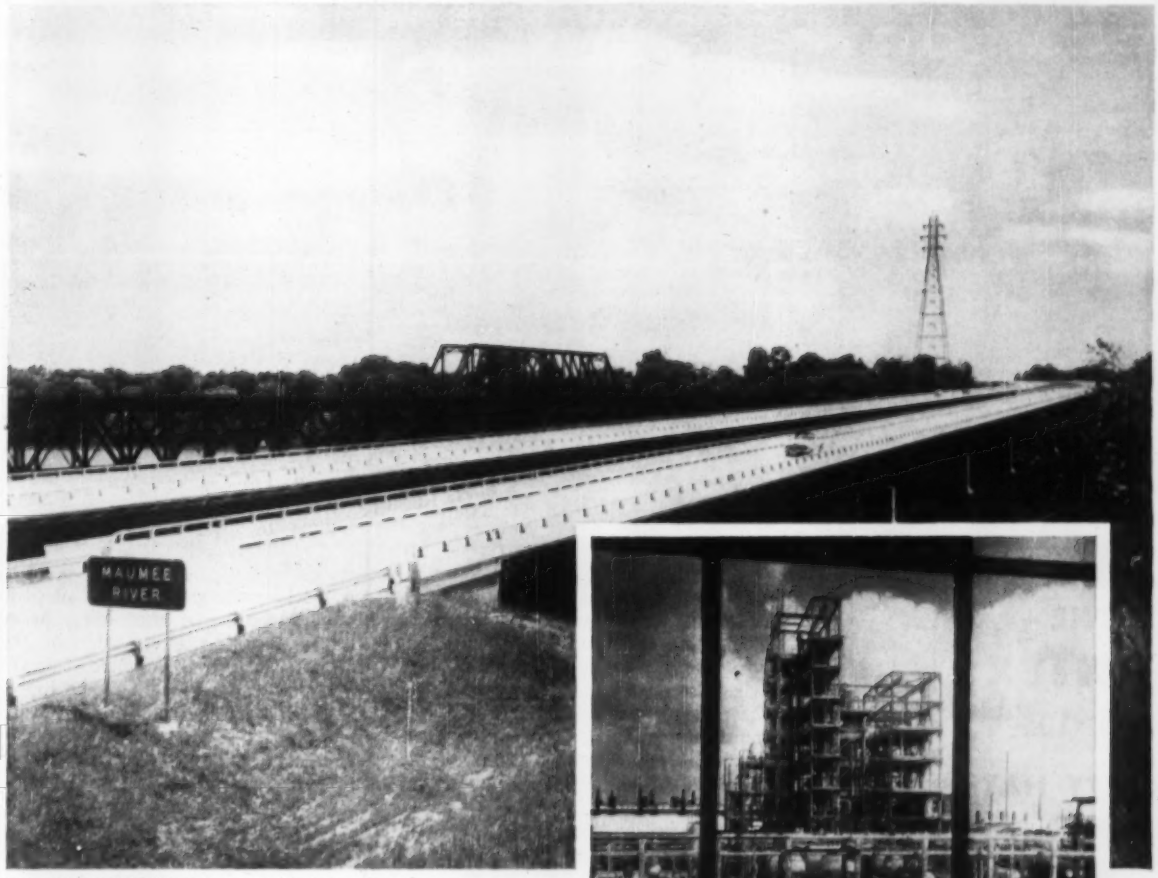
The bascule section itself (on which the New York firm of Hardesty & Hanover served as consultants) provides 20 ft clearance above mean high water when closed, and a channel width of 55 ft, face to face of fenders. Towers to support the bascule and transition spans would stand on a base 57 ft 6 in. long (east to west) and 21½ ft wide, each tower being 38 ft high above high water, excepting for the northwest tower, which will be topped by a 10 ft high operator's control room.

The heavy girders of the transition spans (7 ft deep at the root, 3 ft at the end) will join the prestressed members atop two three-legged reinforced concrete piers of roughly the same dimensions as the pile bents. These piers, and those supporting the bascule span, will stand on clusters of untreated timber piles, driven about 60 ft to bearing in the firm ocean sand.

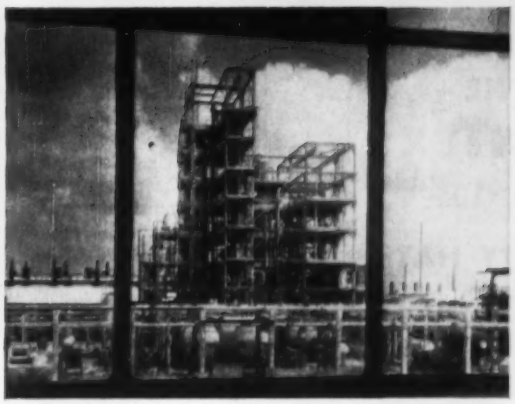
• **Contractor in**—With these specifications ready, a contract was let to the Brooklyn firm of Moore and Lopier, covering the entire structure, and job superintendent Dick Ernst moved in, with a crew of about 40 men, a single piece of concrete pumping equipment; a barge-mounted, lead-equipped crawler crane; a work boat, 2 scows and trucks.

Moore and Lopier had bid the job on two basic assumptions: It would do as little fabrication work as possible on the site, thus would need a minimum of equipment; and it could get along with Matsunaye's forces. Both assumptions have so far proved correct.

A subcontract for fabrication of all of the 3 ft 2 in. deep, 2 ft wide, 62 ft long prestressed girders and for the precast piles was let to PreCrete, Inc.,



THE OHIO TURNPIKE, central link in a 3-state system, crosses the Maumee River near Toledo. Red lead paint was specified for all bridges by the Ohio Turnpike Commission, Pennsylvania Turnpike Commission, and Indiana Toll Road Commission.



RED LEAD primers provide outstanding protection for steel even under the most rigorous industrial exposures.

RED LEAD Keeps America's Superhighways Fit For The Future!

Whether we call them Thruways, Turnpikes, Parkways or Freeways, each link in our growing system of superhighways will someday form a country-wide network of speedy convenience for American motorists.

That day isn't far off, now. Drive almost anywhere, and you see graders working, and beside them, the familiar stacks of steel members for bridges – in their bright orange coats of red lead.

For red lead is truly the standard protective primer wherever steel is exposed to the weather. Its performance under all conditions is in every sense outstanding.

That is why red lead primers are the overwhelming favorites of turnpike authorities, thruway commissions and those agencies in charge of the construction and maintenance of our state highways and superhighways.

Recent research has developed red lead primer paints that meet a wide range of exacting requirements. They can be formulated for quick drying and low cost. There are red lead paints for every conceivable use involving structural steel exposed to weather or corrosion.

We will be pleased to assist you with specific formulations to meet your own requirements—whether for highway structures or steel installations of any kind. Write for our Red Lead Technical Letters, just telling us what type of structural steel painting you are interested in. You will receive an appropriate Letter with technical details and formulations applying to that field. The latest Red Lead Technical Letter No. 12 for example, presents detailed information on complete painting systems for highway structural steel.

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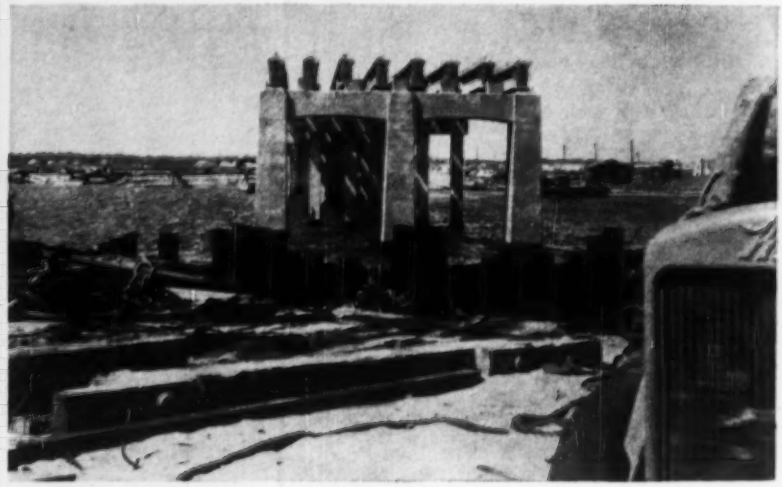
. . . Bridge job: Prefabrication speeds work



FLANKING SPANS for double-leaf bascule will rest on cast in place piers, 68 ft c to c from bridge tower proper (sheeting in center foreground).

of Astoria (New York City), Long Island, which trucked the finished products the roughly 70 miles to the site. The only work that Ernst's crew has done on the site, other than erection and piledriving, has been casting of the caps on the pile bents and of the transition-span piers. This concreting was done on the north side of the channel by taking material from ready-mix trucks and pumping it to forms. For the pier and bents on the south side, the trucks were driven aboard a scow, towed to the site, and unloaded by the floating crane.

The bascule span towers, standing on a base supported by 133 wood piles each, will also be of concrete, except for a granite facing at the water line. The contractor plans to place this concrete also by pumping.

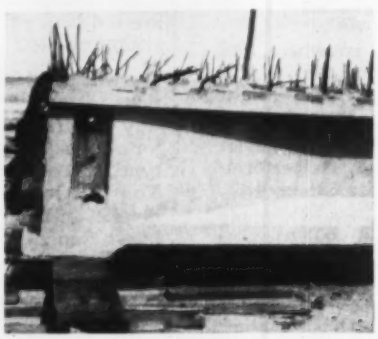
To further reduce on-site work, the upper portion of the steel bearing assembly that carries the prestressed girders is cast into the girder at the yard. Only the lower half must be placed after the pile cap is in place. To facilitate trucking the girders to the site, the engineer eliminated protruding heavy steel bars from the top edge of the member. Instead, he designed a series of shear keys the full length of the top of the girder, spaced roughly 14 in. apart, each key being 2 in. deep. Transverse steel for the deck slab will be placed in those keys and grouted to provide ties.

With all of the required girders now on hand, stored in a yard on the site, erection is proceeding (using a heavy truck crane and the floating equipment) at the rate of two full spans, of 8 girders each, a day when weather permits.

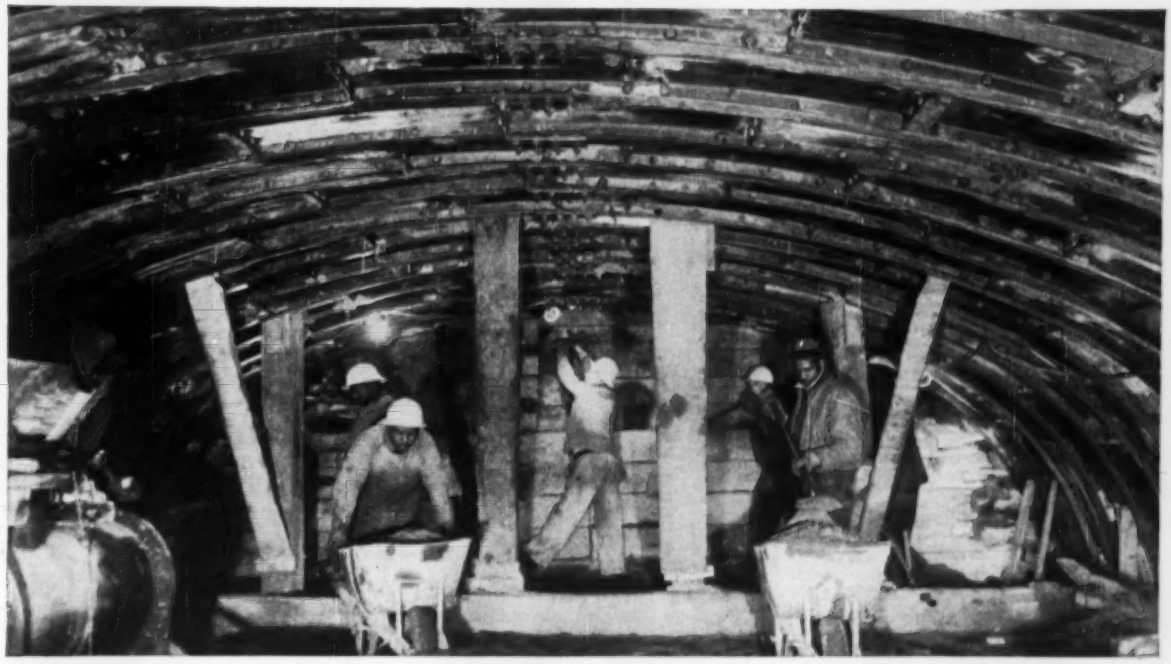
No construction job, of course, is without its problems—but the problems on this one have been singularly few. Biggest was that of bringing the scows through the shallow and often tortuous channel to the site. Others have had to do with the weather—the area is exposed to bitter winds sweeping off the ocean. Another is the tricky job of hanging formwork for the deck slab form the smooth, rounded edges of the girder—a job that has called for the ingenuity of the carpenters and dockbuilder foremen employed. There has been only one minor instance of labor trouble—a continuing dispute between ironworkers and the dockbuilders over erection of the girders.

But site conditions are fine—there's ample room for storage and work, the foundation is excellent sea sand or coarse gravel and clay, providing fine bearing and no obstructions for the piles. And cooperation with the county's forces has been easy and good, according to Ernst.

Lester C. Eckart is bridge engineer for the county; Allen D. Woodward is resident engineer.



SHEAR KEYS on top flange of precast girder will also accommodate transverse steel for road slab reinforcing, eliminating protruding heavy bars from girder.



MAINLINE TRAINS STAY ON SCHEDULE DURING BRIDGE RECONSTRUCTION

A typical Commercial tunnel lining support application

The New York, New Haven and Hartford Railroad has to maintain train schedules on a four-track main line while a 70-year old stone bridge on the line is completely reconstructed. Here's how Commercial steel tunnel liner supports help.

The stone arch of the bridge over Stephenson Brook Drain in New Rochelle, New York—55 feet portal to portal—started to give way and fail after years of continuous service involving frequent live loading, vibration and weathering conditions. To prevent complete collapse, and to restore the bridge, all work had to be carried on without interferring with the main-line rail traffic overhead.

First, the 102-inch drain running through the main arch was diverted through one of the eight-foot side arches used as a pedestrian underpass. The main arch was then immediately backfilled and tamped.

Actual restoration of the bridge was begun following approval of design specifications submitted by Commercial engineers. Steel plates and ribs for the arch supports were completely fabricated by Commercial before erection.

As heading in the arch backfill is removed, the steel arch support—four-inch "H" beam ribs, spaced on 16-inch centers, with steel liner plates bolted between each course, are installed into position.

Solid and uniform back packing—between the steel support and the underface of the original stone—is provided by means of high pressure grouting. Easily removable threaded plugs in threaded grout openings facilitate the operation.

When the Commercial steel arch support is finally completed and the earth fill below the spring line is removed, new permanent concrete lining (imbedding the steel ribs and plates) will be poured.

Not once during the complete restoration job will a "slow order" be required for the heavy railroad traffic overhead.

Complete information on how Commercial can help *you* with your surface or sub-surface tunnel problem—regardless of length—is easy to get. Just write to: Dept. E-24, The Commercial Shearing and Stamping Company, Youngstown 1, Ohio.

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IT'S SERVICE AS USUAL with New Haven trains running on schedule overhead as reconstruction of a stone bridge built in 1887 moves right along to completion.

STEEL TUNNEL SUPPORT braces and holds stone in the sides and crown—will remain in the arch permanently. Lightweight, it requires no erection equipment.

SIMPLE ONE-HAND OPERATION, with ratchet-type wrench, quickly and easily handles all bolting as heading is removed and tunnel liner supports are installed.

Lights . . . .

. . . To help the driver, but not blind him, shouldn't disturb adjacent property owners. That's only one of the problems solved by . . .

Landscaping: Full Partner in Turnpike

Because its location cuts through an almost solidly urban area for nearly half its length, the Connecticut Turnpike has posed a number of very special problems in the matter of planting for scenic values, for safety and other reasons.

Now under construction, and scheduled for completion in December, 1957, the Turnpike stretches 129 miles from the New York border to a junction with U. S. Route 6 at the Rhode Island state line (ENR July 19, 1956, p. 40).

The requirements of local traffic have dictated a right-of-way of 300 ft, normal traffic lanes of 12 ft, normal shoulder widths of 10 ft and medians varying from 8 to 30 ft. The Turnpike will provide from two to eight traffic lanes.

• **Big difference**—There is, however, a major difference between this turnpike and most previous ones. In Connecticut, traffic requirements and general economic development of areas traversed by the road have dictated the location of the pike right through urban and industrial areas, even though smaller communities have been bypassed where possible. For a large part of its route also, the road parallels the main line trackage of the New York, New Haven and Hartford Railroad—which also presents a special problem in screening.

According to A. Carl Stelling, site planning consultant of New York and Hartford, Conn., and Ernest T. Perkins, assistant chief engineer for the Connecticut State Highway Department, a high speed highway passing through urban and suburban areas makes special requirements for consideration of the user and for the health and welfare of the adjacent population.

Along the course of the Turnpike, there are three distinct areas: industrial and urban, residential and rural. Because of the large sections of the road which pass through well developed urban areas, considerations that include screening of both sight and sound of the road, safety of the driver and the local population, and maintenance of local land values had to be taken into account.

• **In at the beginning**—For this reason, roadside landscaping planning was begun during the highway design stage.

According to Mr. Stelling, the approach used gives consideration to six major factors:

• Safety, because higher speeds have dictated the need for additional engineering and safety features such as sight lines, screens and stopping sight distances;

• Screens, to separate highway and adjacent property through use of planting barriers;

• Sound attenuation by use of planting to reduce roadside noise and confusion from the highway and adjacent areas;

• Glare protection by providing a screen for opposing traffic;

• Monotony, the need for an attractive scenic route that would preserve existing vistas and add planting to counteract monotony and fatigue;

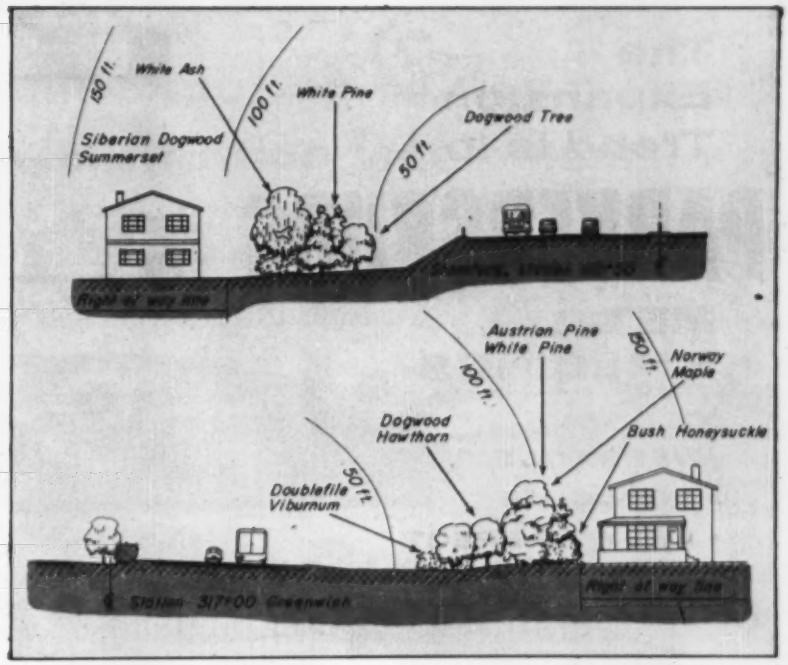
• Finally, economy of maintenance which would permit maximum use of mechanical equipment to mow grassed areas, keep them clean without interference from the planting.

• **How to do it**—To achieve these ends, the consultant and the highway department made numerous field trips and a mile-by-mile inventory of all existing conditions relating to roadside development.

The inventory was made on a basis that any existing plant material be thoroughly checked to see if it could be saved.

As to clearing for sight lines, these design standards were adopted:

A 60 mph design speed zone requires a minimum sight distance of 500 ft; inside loop ramps, with design speeds of 30 mph, required a minimum sight distance of 200 ft; at intersections of secondary roads, with no traffic lights,



SOUND AND SIGHT SCREENING in residential areas depend on a predominance of evergreens as basic components. Plants are below and off the slope.

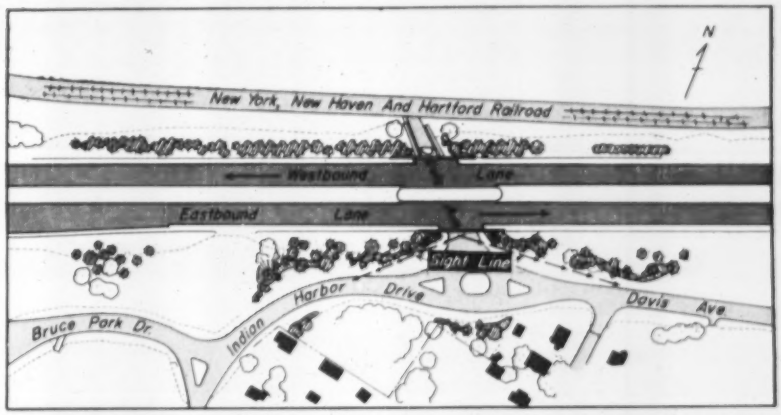
Design

a sight distance of 150 to 200 ft was required.

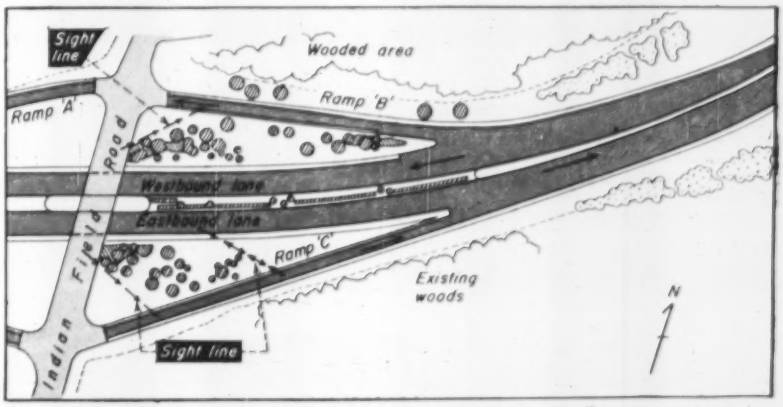
• **Fill is problem**—A great portion of the Turnpike is on fill, thus space for screen planting is limited. This complicated the problem, since the engineers have determined that no major trees may be planted less than 35 ft from the edge of the pavement, and shrub plantings must be no less than 8 ft from the edge of the shoulder. (Plantings of ornamental trees must be not less than 15 ft from the edge of the shoulder.) Additionally, much of the fill used is sandy in nature and is not ideal for plantings.

Because of these factors, most of the screen and sound attenuation plantings are to be of evergreen trees. Since the planting areas are limited, the shrubbery will be located near to the object to be screened.

In cut areas a different approach is necessary. In the northeast part of the United States, it has been found that any planting at the top of a slope on the south side of the highway will tend to encourage icing in winter weather, particularly if evergreen trees are used. Because of this, shrub beds will be used generally, with a small number of deciduous trees. If evergreen trees are required, the planting will be set back from the top of the slope to prevent winter shadows being



RAILROAD TRACKS paralleling much of the Turnpike are a special problem. Row planting between track and road will cut off trains' headlight glare, distracting noise.



LONG SIGHT LINES are stressed for "on ramp" so pike traffic can see entering vehicles readily. "Off" ramps are cut from sight by planting.

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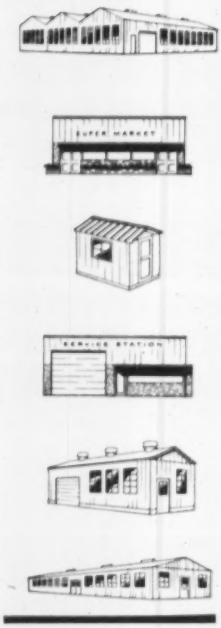

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. . . Noise and light control

cast across the highway. Of course, a partial sound barrier is provided by the cut area itself, and can be supplemented by the roadside plantings. In rock cut areas, little or no planting is planned.

• **Urban areas**—In a number of large cities, such as Stamford, Norwalk, Bridgeport and New Haven, the roadway rides on dredged sandfills through low-income dwelling areas and valuable industrial sections.

There will be no attempt to use screen or sound attenuation planting in these areas—there just isn't room. In addition, the plants would be affected by a great amount of industrial fumes.

• In residential areas, the designers agreed that the primary importance is the protection of the adjacent homes from noise, lights and blight.

• In rural areas—generally the portion of the Turnpike from the Connecticut River to the Rhode Island line—planting will be made only where necessary, such as at interchanges and at locations where screen and headlight glare plantings are required.

• Median strips — Median screen planting will be made along horizontal curves only. From a safety point of view, no major trees will be permitted and only suitable hardy shrubs and a minimum number of minor trees will be planted, to yield under collision impact. In addition, there is a minimum plant setback from the pavement of 5 ft for the safety of maintenance personnel.

• Another problem is that of the railroad. Between Greenwich and Branford, the Turnpike runs adjacent to the tracks, and locomotive headlights can cause confusion and glare. Large evergreen trees will be used to screen off the railroad right-of-way.

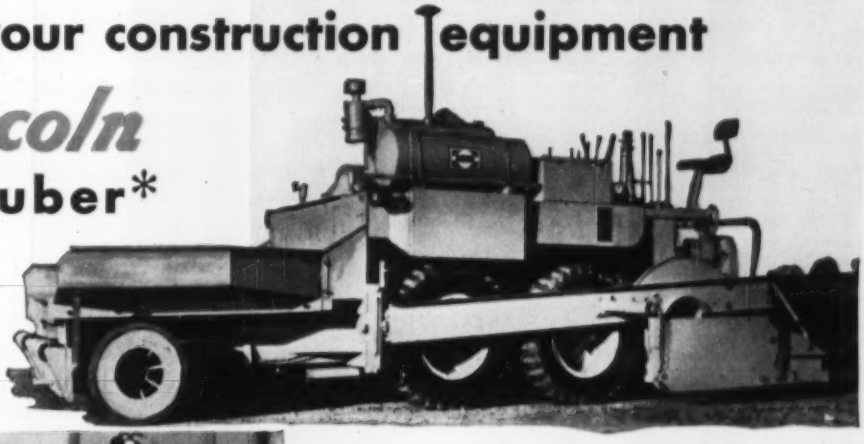
At interchanges, with sight lines and safety as a major factor, mass planting will be used to divide the exit ramp traffic from the Turnpike. No planting 500 ft to 600 ft from the pike on ongoing ramps will be permitted.

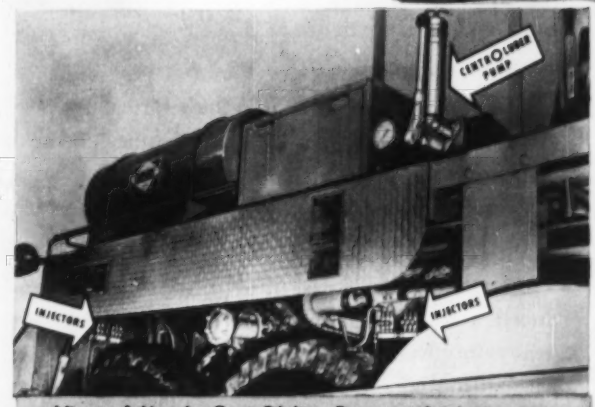
• **Safety**—for the all-important problem of safety, plantings will be so made as to avoid the introduction of shadows that can often give the appearance of being moving obstacles or create other illusionary effects.

In addition, "windtunnel" effects have been avoided. Plantings close to the highway have often resulted in a trough which, when located on side slopes adjacent to valleys, causes a quickening of the air flow. Up drafts thus created can result in lowering the pavement surface temperature to a point of freezing while approach sections could remain clear of icing.

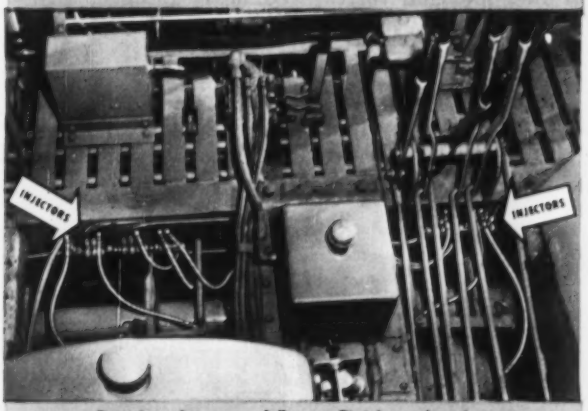
Now... eliminate "Lubrication Down-Time" on your construction equipment

WITH *Lincoln* CentrOluber* Systems





View of Lincoln CentrOluber Pump and injectors on Bituminous Paver Finisher. Maximum lubricant pressure is 2,500 lbs. P.S.I., with reservoir capacity of 2 lbs.



Overhead scene of Paver Finisher, showing injectors and flexible feed lines that connect injectors to bearing parts.

Here is One of Many Typical Cost-Saving Case Histories

THE PROBLEM faced by Wright Construction Co., Lansing, Michigan: how to eliminate down-time required for daily manual lubrication of critical, hard-to-contact bearings on their Bituminous Paver Finishers.

THEIR SOLUTION: installation of Lincoln CentrOluber Centralized Lubrication Systems. Now, machine operator simply cycles System four times per eight-hour shift. A predetermined, measured quantity of either fluid or viscous lubricants is delivered automatically under high pressure to all bearings in seconds . . . *while machine is in operation!*

PLUS THESE RESULTS: lubricant consumption reduced, thanks to metered lubrication . . . danger of lubricant contamination from dust and grit eliminated because of sealed System from pump to bearings . . . reduction in man-hours previously expended for manual lubrication . . . increased bearing life . . . and uniform, maximum machine performance through elimination of friction factor and consequent mis-alignment of moving parts.

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BIG YELLOW TEAM KEEPS HOT MIX MOVING AT 150 TONS PER HOUR

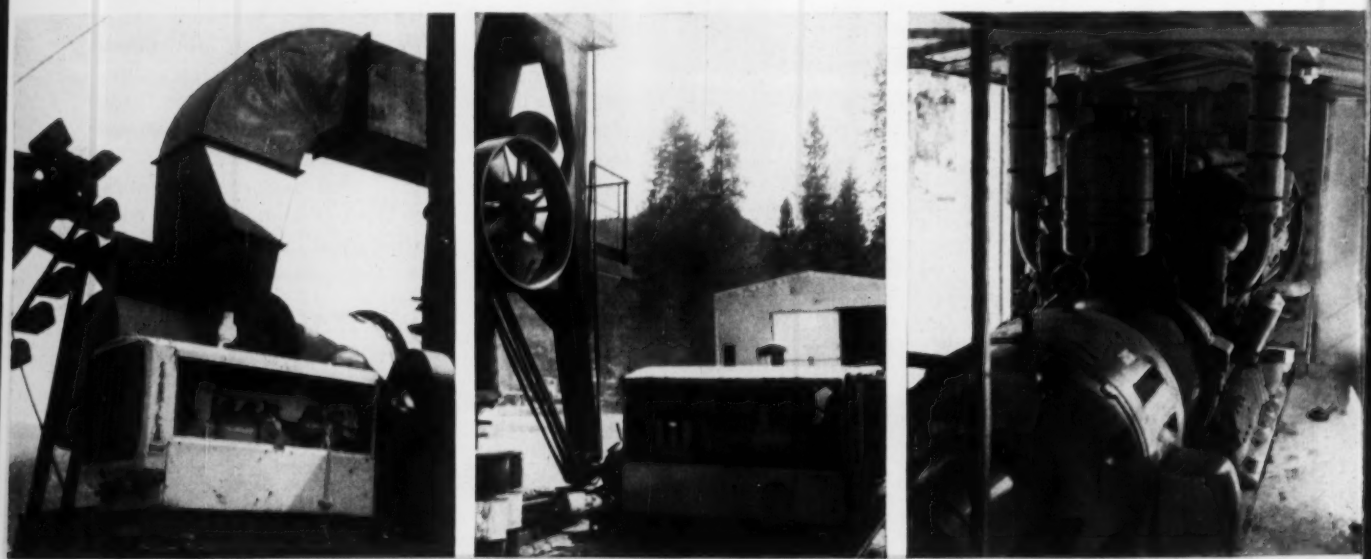
Commonwealth Construction Co., Ltd., of Vancouver, B. C., Canada, depends on Caterpillar equipment for its road building jobs. The pictures shown here were taken near Clearwater, B. C., where 11.3 miles of highway were being surfaced with hot mix.

Included in Commonwealth's big yellow team at the mixing plant are a CAT* D318 Engine that drives the blower, a D342 that drives the mixer and a D364 Electric Set that runs the dryer, bucket line, pumps, burners, lights and conveyors. Hourly production is approximately 150 tons of material.

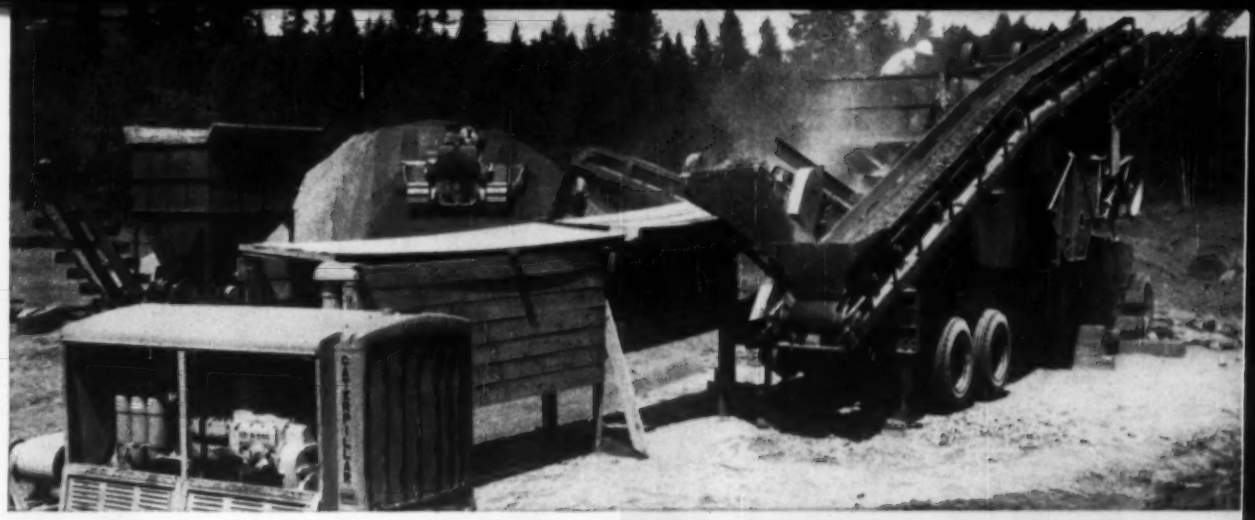
Power for the portable crusher is supplied by another Caterpillar D342 Engine. A D318 powers the 1-yard dragline that loads the hopper, and a Cat D6 Tractor stockpiles the gravel as it comes from the crushing plant, handling about 1,800 tons a day. The seventh Caterpillar machine in the line-up is a No. 112 Motor Grader, used for scarifying and leveling the road.

Many contractors have found it pays to keep Cat equipment predominant in their spreads. Operators are familiar with Cat-built machines and feel at home with them. Rugged design, good control and ease of maintenance are other qualities which operators like about Cat equipment.

A quarter century of diesel leadership has produced a line of engines that are unbeatable for heavy-duty work. They're built to operate steadily, without fouling, on a wide variety of low-cost fuels, including ordinary No. 2 furnace oil. There are no cylinder ports to clean, and simple, single-orifice fuel injection valves need no cleaning or adjustment. Lubrication schedules are also simplified when all equipment is Caterpillar-built.



Three Cat Diesels power the Standard Steel hot mix plant: A D318, left; D342, center; and a D364 Electric Set, right.



This D342 Engine drives the Pioneer portable crusher. In background, working on the gravel stockpile, is a Caterpillar D6 Tractor.

One of the most important factors in standardization is the availability of prompt, efficient service on all machines from a single, responsible source—your Caterpillar Dealer.

He has facts and figures to prove the dollars-and-cents advantages of making Cat equipment the backbone of your spread. And he backs the long work life of that equipment with reliable service and Caterpillar parts you can trust.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

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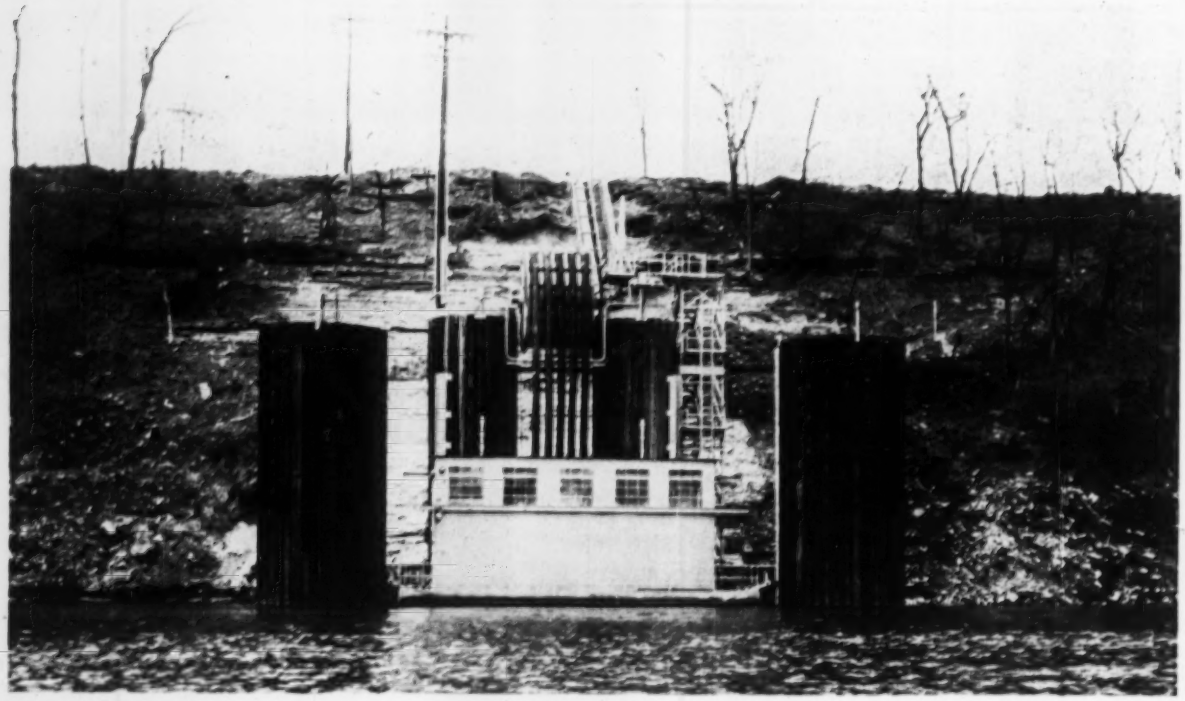
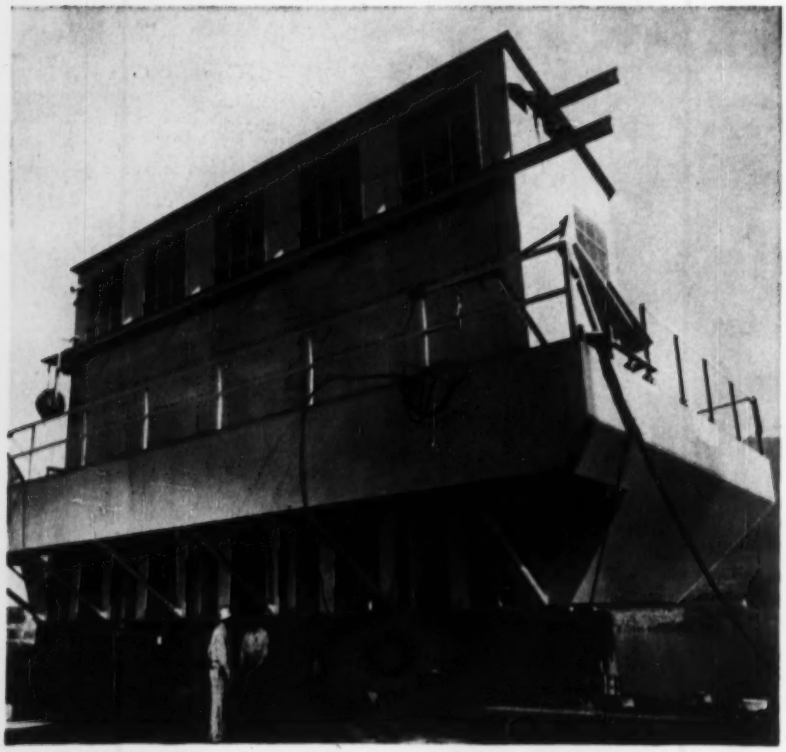
The Koehring dragline, with 1-yard bucket, is powered by a Cat D318 Engine.

A Caterpillar No. 112 Motor Grader scarifies and grades road surface before asphalt mix is laid.



SHEETPILE CELLS guide unusual pump house through 35 ft rise and fall of Cumberland River near Nashville, Tenn. Pump intakes are kept at constant immersion depth, thus drawing clearer process water for glass works.

Better Water With Floating Pump House



PUMP HOUSE is poised for launching at shipyard near Pittsburgh. Outrigger construction offsets change in loading when hoses shift from barge to reel.

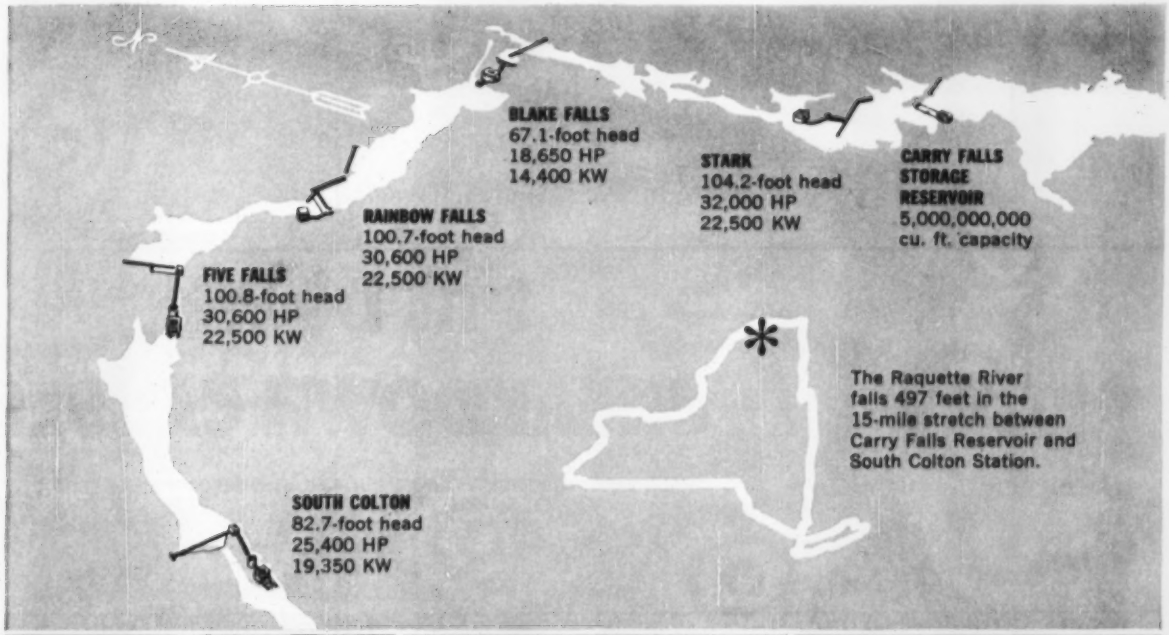
A cleverly designed floating pump house is now delivering 14 mgd of process water to a glass plant located on the Cumberland River near Nashville, Tenn.

The unusual design allows pump intakes to be maintained at a constant immersion depth regardless of river level, which fluctuates 35 ft at Nashville. Thus plant process water is freer of sand and silt.

Pumps and intake screens are mounted on a welded steel barge which is moored to four steel sheetpile cells. The barge, 30 x 50 ft, is fitted with pneumatic-tired wheels at its four corners which run in tracks formed by I beams welded to the cells. Cells are 60 ft above normal water level.

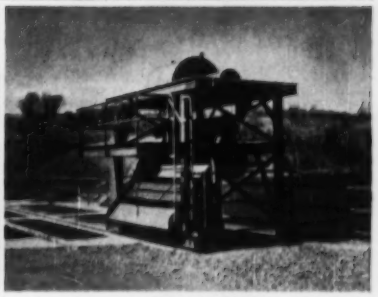
The cells, which are filled with sand and gravel and capped with concrete, also help fend off floating logs and debris. Riverward cells are 16 ft in dia, landward cells are 13½ ft in dia.

Mounted atop the landward cells is a 16 ft dia steel hose reel, grooved to receive five 12 in. dia rubber hoses. Each hose is attached to an elbow leading into the axle of the reel, so that the axle serves as a manifold for the discharge of all the hoses. A 24 in. dia pipe, connected to one end of the 24 in. axle, leads along a steel grid walk-



South Colton powerhouse is typical of all 5 unattended stations. Supervisory control of automatic operation will be from Colton, 7 miles downstream.

Two SMS sliding gates with 50,000-lb. twin-drum cable hoists at Carry Falls Dam are designed for free discharge under a 58-foot head. This site can be converted to a hydro plant later if desired.



SMS self-dumping trash rakes operate directly on rack bars, ride down over obstructions and work them loose with a freedom of movement that assures fast, easy cleaning.

5 New Stations On Raquette River Equipped with SMS TURBINES AND ACCESSORIES

To further harness the Raquette River in northern New York, the Niagara Mohawk Power Corp. is now completing a series of five new power plants and a large storage reservoir. Each of these automatic, peak-load stations is equipped with an SMS-Francis turbine. SMS intake gates and twin-drum cable hoists, as well as trash rakes, are also used.

Working in close conjunction with Niagara Mohawk's engineers, SMS used two runner designs in the same basic wheel case for all five units. One runner design was used for the lower head turbines at South Colton and Blake, while another was used for the higher head turbines at Five Falls, Rainbow and Stark. This meant initial economy, and will provide operating and maintenance savings.

Each of the three lower stations uses self-dumping trash rakes at the turbine inlets. This design makes operation quicker and easier, cleans a greater area faster. For full information on these new trash rakes, or on other SMS accessories and hydraulic turbines, write S. Morgan Smith Co., York, Penna.

More Power To . . .

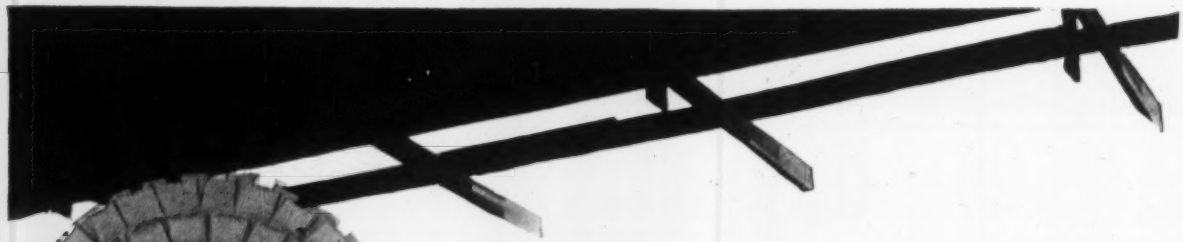
S. MORGAN SMITH

SMS

HYDRODYNAMICS

AFFILIATE: S. MORGAN SMITH, CANADA, LIMITED, TORONTO

Rotovalves • Ball Valves • R-S Butterfly Valves • Free-Discharge Valves • Liquid Heaters • Pumps • Hydraulic Turbines & Accessories



PIN DOWN BREAKDOWN CAUSES

. . . with Socony Mobil's new Contractor PM System and expert engineering service!

Contractor PM System Includes:

1. Record Folder—provides identifying data for each piece of equipment, holds equipment records.
2. Operator's Recommendation Chart—lists the correct lubrication recommendations for each piece of equipment.
3. Weekly Service & Inspection Report—an up-to-date record of mechanical condition of equipment, work to be done or completed.
4. Delivery Ticket—lists petroleum supplies delivered to equipment on the job.
5. "Squawk" Sheet—used by equipment operator to point out trouble spots that need attention.

If improper lubrication is causing your equipment to break down prematurely, Socony Mobil's new simplified Contractor PM System and famous engineering service can help prevent it. This comprehensive service includes analysis of equipment condition, advice on inspection and lubrication periods by experienced engineers—all backed by Socony Mobil's vast research facilities and technical know-how. In addition, Socony Mobil's Correct Lubrication Program also includes:

Famous Quality Products such as Delvac Oils, New Mobilube GX Multipurpose-type Gear Lubricant and Mobilgrease.

SOCONY MOBIL Mobil

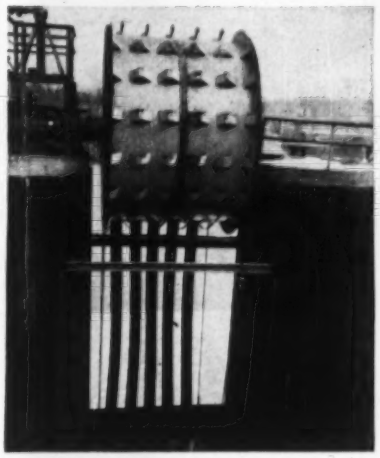
Leader in lubrication for over 91 years

Correct Lubrication

A PROVED PROGRAM TO REDUCE EQUIPMENT MAINTENANCE COSTS

SOCONY MOBIL OIL CO., INC.
and Affiliates: MAGNOLIA PETROLEUM CO.
GENERAL PETROLEUM CORP.

RUBBER WHEELS on barge corners ride in I beam tracks in sheetpile cells.



HOSE REEL takes up slack, its axle serves as discharge manifold.

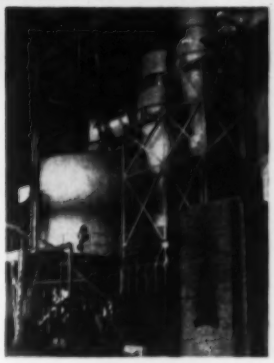
way to the shore and up the river bank to a water treatment plant. The hoses extend 40 ft to discharge outlets on the five pumps.

Rotation of the hose reel is controlled by 1⅛ in. dia steel cables wrapped around the flanges of the reel. They lead directly to the barge on the riverward side and through a fixed sheave between the cells to the barge on the shore side. Thus, as the pump barge rises and falls with the river, the hoses are automatically reeled to keep them taut between barge and reel.

Each of five pumps in the barge deckhouse has an individual suction chamber protected with a screen opening 8 ft below water. Four of the pumps have a capacity of 4,000 gpm each and are electrically driven. The fifth is a 2,500 gpm standby diesel unit.

The unusual pump installation was built for the Ford Motor Co.'s glass works by Dravo Corporation's Contracting and Engineering Works Divisions. The barge and hose reel were constructed at Dravo's Neville Island shipyard near Pittsburgh.

Dowa Mining's Kosaka hydro-metallurgical plant where Dorrco FluoSolids System roasts 83 metric tons of complex copper-zinc concentrates per day.



One of two 20 ft. dia. FluoSolids Reactors roasting 235 metric tons per day of crushed pyrrhotite ore at Dowa's Okayama Plant.

Fluidization—
key to maximum utilization in Japan

Processing copper bearing pyrrhotite ore, the Dowa Mining Company at the Okayama, Japan plant is producing . . . and all from the same raw material . . . sintered iron ore for blast furnace use, cement copper and sulphuric acid.

Of major importance in this unique installation is the Dorrco FluoSolids System. Utilizing the proven principles of fluidization, the crushed raw ore is roasted under controlled conditions in the System . . . providing SO_2 gas for contact acid manufacture . . . Roaster calcine is acid leached for copper recovery and leach residue is sintered as blast furnace feed.

Dorr-Oliver in conjunction with our associates in Japan, Sanki Engineering Co. Ltd. of Tokyo, have collaborated with Dowa Engineers before. At Dowa's hydro-metallurgical plant in Kosaka, Japan, the Dorrco FluoSolids System is a prime factor in the world's first successful roasting of copper and zinc with electro winning of both metals.

For detailed information on D-O equipment and services involving the separation of finely divided solids in suspension or fluid techniques, drop a line to Dorr-Oliver Inc., Stamford, Connecticut.

FluoSolids is a Trademark of Dorr-Oliver Inc. Reg. U. S. Pat. Off.

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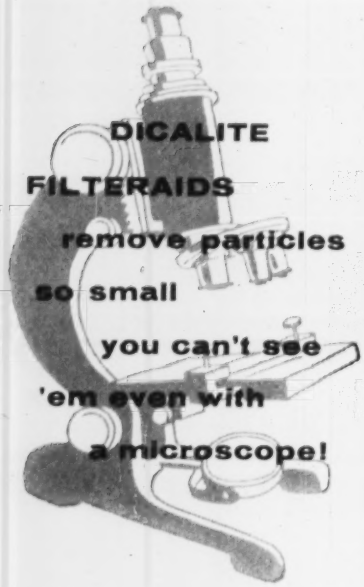
STAMFORD • CONNECTICUT • U.S.A.

PROBLEMS IN WATER FILTRATION

CLARITY?



DICALITE FILTERAIDS remove particles so small you can't see 'em even with a microscope!

This means all algae and practically all bacteria, as well as other microscopic particulates, even gelatinous or slimy.

For 'sharp' filtration, combined with fast flowrates, Dicalite Filteraids are unsurpassed in the economical clarification of water.

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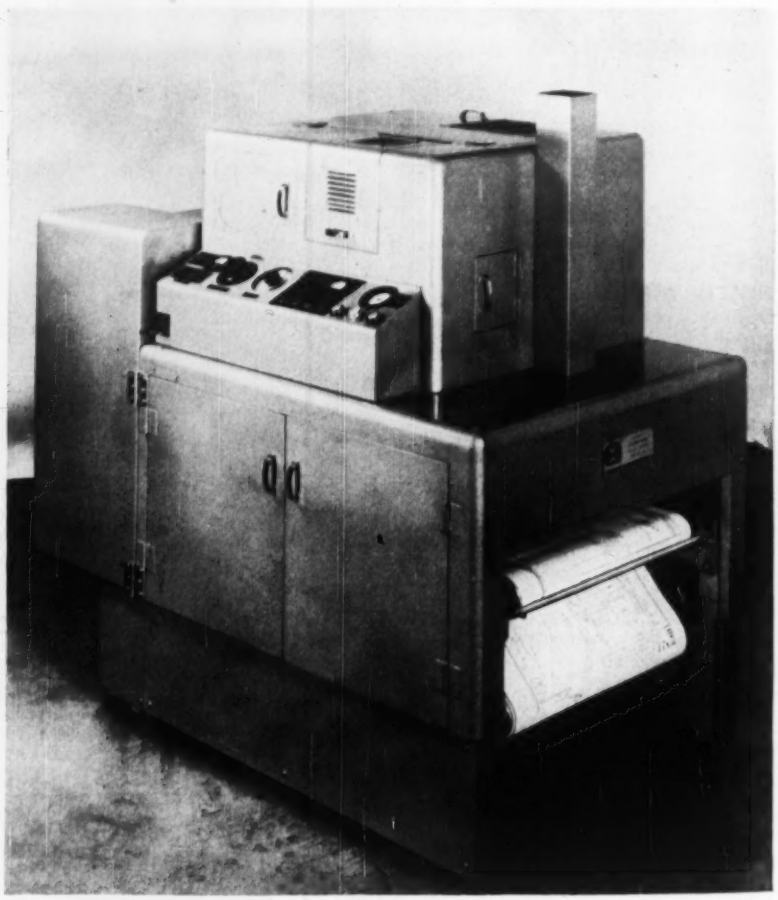


Steady Flow of Prints From Microfilm

The Naval Bureau of Aeronautics and the Haloid Co. have just unveiled a machine that turns out a continuous stream of 24 x 36 in. black-line prints from microfilms of drawings. The printing process is a dry method permitting immediate use of the prints and automatic production of up to 400 copies of each drawing.

Now in service at the Naval Aviation Supply Depot in Philadelphia, the printer is teamed with punchcard and photocopying equipment and will eventually take over the job of maintaining NASD's working file of four million engineering drawings. The new system will sharply trim reproduction costs for the depot.

Microfilms for the new machine are inserts in punchcards. However, by use of an attachment, prints can be made also from either 16 mm or 35 mm microfilm rolls.

The old reproduction process, which is being abandoned as microfilming proceeds, involves the use of full-size master copies that cost $1.20 each to produce from original drawings. Prints made from the masters cost 50c each.

With the new system, microfilms mounted on punchcards cost 10c and prints 12c each. Any kind of paper can be used.

Haloid is now developing a smaller continuous printer for making reproductions 18 x 24 in. (or 18 in. wide by any length). With the smaller model, the firm expects to operate a reproduction service for companies that microfilm drawings but don't want to own printing equipment.

The dry printing process incorporated in the new machine is an electromagnetic method developed by Haloid several years ago and called "xerography." The image is enlarged and projected optically on a positively charged plate, which in the new machine is the selen-

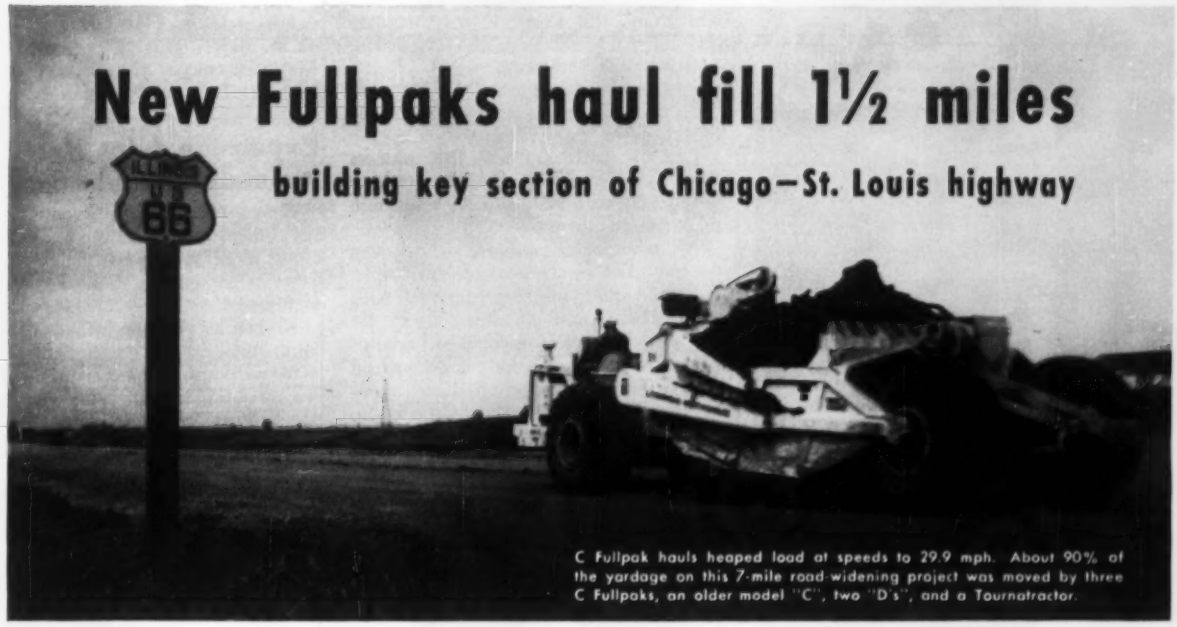
Improving Chicago — St. Louis highway

The plan of the Illinois Highway Department — to make U.S. Route 66 a divided 4-lane highway between Chicago and St. Louis — is now nearing completion. Road has been built to near-super-highway specification, with grade separations at most crossings, and only small sections at each end remain to be completed. Brown and Lambrecht sub-contracted earthmoving for 7 miles of this highway, from Powers and Thompson, Joliet. The section crosses flat country, about 9 miles east of Plainfield, and a little more than 30 miles southwest of Chicago.

C Fullpak loads and spreads rock or chunky materials easily, because of its high 6'1" apron lift. Positive power-steered through geared kingpin and operated by fingertip electric controls, big machines maneuver quickly and effortlessly.

New Fullpaks haul fill 1½ miles

building key section of Chicago–St. Louis highway



C Fullpak hauls heaped load at speeds to 29.9 mph. About 90% of the yardage on this 7-mile road-widening project was moved by three C Fullpaks, an older model "C", two "D's", and a Tournatractor.

To widen 7 miles of U.S. 66 near Plainfield, Illinois, from 2 lanes to 4, Brown and Lambrecht of Joliet had to move 300,000 yds. of clay, topsoil, sand and gravel. Important in the earthmoving fleet chosen for this $1,300,000 project were 4 C Tournapulls — 3 of them new 18-yard "C" Fullpaks and one an older 16-yard Model "C".

Pushed about 155 feet by 191 hp crawler, "Fullpak" loads 15 to 17 yards of topsoil in an average of 58 seconds.

3-mile cycle in 15.65 minutes

At one phase of this operation the "C's" were traveling unusually long cycles. After cutting material out of a slight hill, units traveled down 2½% grades for 3,000 to 4,000 feet, then drove 4,000 to 5,000 feet across almost level ground to the fill. Hauls, 1½ miles long, over roads that were rutted in places, took 7.9 minutes. "C's" spread over a distance of 100 feet in ⅓ minute — returned to the cut in 6.3 minutes.

Complete cycles, better than 3 miles long, averaged 15.65 minutes.

Fullpak loads ⅓ faster

Commenting on the new Fullpak C Tournapulls, Foreman Henry Hallberg says, "I'll sure go along with these new C Fullpaks; they're real good machines and are doing a good job. The Fullpak gets bigger loads and gets them faster!"

Time studies show each Fullpak picked up 15 to 17 yards of topsoil in 58 seconds. "I like the way this new Fullpak is built for loading," says operator James Florey. "You can always see your load."

Investigate before you buy

Before you buy your next scraper, get complete information on the new 18-yard easy-loading C Fullpak Tournapull. Write us for full details.

Fullpak—Trademark, Tournapull, Tournatractor—Trademark Reg. U.S. Pat. Off. F-1180-H-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT

Ashes, coal and other substances under foot often make solid floors in boiler rooms unsafe.

Such hazardous materials cannot accumulate on a floor made of Irving open steel grating. Debris falls right through, making floors always clean. Dangerous fumes can escape through open grating. Floors made of Irving Grating are clean, safe at all times . . . no ankle turning, tripping, slipping, hot foots. It is fireproof, self-ventilating.

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ium-coated surface of a rotating drum. The light neutralizes all areas it strikes, leaving a latent image on the plate in positively charged lines and areas. The plate is then "dry-washed" with negatively charged, powdered plastic, which adheres to the positively charged image and makes it visible.

Next positively charged paper is brought in contact with the plate, whereupon the plastic leaves the plate and adheres to the paper, which is more positive than the plate.

Finally, heat is applied for the purpose of fusing the plastic permanently to the paper.

For any particular film, the process takes only a few seconds. The machine produces 24 in. wide prints at the rate of 20 lin ft per min.

All xerographic equipment operates on the same electromagnetic principle. However, older printing machines with which Haloid now operates a service for the reproduction of microfilmed records (11 in. wide prints), have fixed instead of rotating plates and are noncontinuous in operation. THE HALOID CO., ROCHESTER 3, N. Y.

Bulldozer Designed For John Deere Crawler

A bulldozer blade has been introduced by the Henry Manufacturing Co. for use with a John Deere 420 crawler tractor.

Two models are available—the Henry angle tilt dozer ATD-1, and the Henry straight dozer SD-1.

Both of these attachments have been designed with box steel push beams, outside mounted to insure against springing blade edges.

According to manufacturer's specifications, the angle tilt blade is 96 in. long, has a 24 in. high mold board and a 6-in. high cutting edge. It will angle 25 deg to right and left, tilt 9 in.

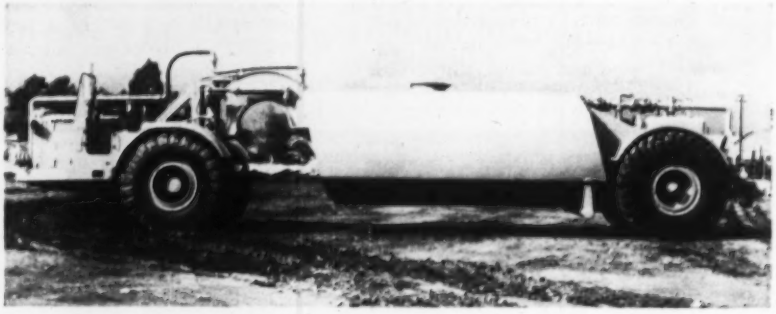
The straight bulldozer blade goes to a depth of 15 in. below ground and lifts 42 in. above. It is 72 in. long. HENRY MANUFACTURING CO., Box 720, 1700 N. CLAY ST., TOPEKA, KAN.

Expansion Joint Material Maintains a Tight Seal

A new type of expansion joint material and caulking compound said to elongate 325% through the normal temperature range of 70-80 F, has been introduced by the A. C. Horn Co.

Known as Hornflex rubber expansion joint and caulking compound, the new material is claimed to maintain a tight seal of joints by squeezing and stretching with any movement.

Especially effective in curtain wall construction around surfaces where adhesion is difficult, the manufacturer says that the compound is used for filling and sealing surface joints in bridges, buildings, highways and swimming pools and between metal panels of stainless or enameled steel glass and building materials of dissimilar surface density and texture. A. C. HORN CO., INC., c/o SUN CHEMICAL CORP., LONG ISLAND CITY, N. Y.



Sprinkler Tank Has Big Capacity

A 6,000-gal semi-trailer sprinkler tank is now available, after development by the Southwest Welding & Mfg. Co.

The all-steel trailer was designed for use with the single-axle Caterpillar DW21 tractor. This tractor-tanker combination operates on everything from soft fill to hard haul roads, according to the manufacturer. Tires measuring 29.5 x 29 in. afford adequate flotation. Designated STT-60 by Southwest, the trailer is 10 ft wide and 11 ft, 10 in. high. Its tank section is 18 ft long, 76 in. deep and 108 in. wide. Wheelbase is 27 ft 3 in. and length of both units is 45 ft. The machine carries both front and rear spray bars. CONSTRUCTION MACHINERY DIV., SOUTHWEST WELDING & MFG. CO., 3201 W. MISSION RD., ALHAMBRA, CALIF.

100% anti-friction drive

gives you bonus push-power... top efficiency

Adams 660 grades sub-base on reconstruction of State Highway 140, near Foxboro, Mass. Contractor is Rufo Construction Co., Boston. John M. Rufo, Vice President, has this to say about the work-ability of his company's "660": "When slow, steady blading is needed, the Adams works slow without sacrifice of power. When fast secondary passes are made, no other machine can touch its speed. It definitely has greater pushing ability... practically eliminates the need for a bulldozer on a road graveling job."

Compared to other graders, Adams heavy-duty machines deliver a greater proportion of developed engine-power to tandem wheels. An Adams gives you this bonus work-power because all gears and shafts in transmission, final drive, and tandems turn on anti-friction bearings.

Push bigger loads . . . faster

Because the Adams' drive has roller- and ball-bearings throughout, very little of its horsepower is lost thru friction. More thrust is made available for pushing bigger loads . . . for blading deeper . . . for working faster. Furthermore, with an anti-friction drive, your graders' fuel-cost per unit of work done is correspondingly lower. Finally, longer bearing life cuts maintenance expense and downtime for repairs.

Transmission delivers maximum torque

The Adams transmission provides more power-speed combinations than other graders . . . 15 speeds . . . so you can do every grading operation at fastest practical rate. At each speed, transmission delivers maximum torque, because all gears and shafts turn on anti-friction bearings. It is fully constant-mesh . . . gears always engaged for fast, easy gear-shifts without clashing. Crown-shaved helical gears mate precisely . . . run continuously in oil . . . do not "howl" . . . give extra-long life.

Rear-Axle carries no weight

In heavy-duty Adams graders, 80 to 190 hp, the main rear axles are full-floating — they do *not* carry weight of the grader. Instead, rear-end weight is borne by sturdy axle carriers, consisting of two concentric, tubular-shaped, steel housings — one inside the other. Tandems oscillate at will on the two axle carriers. Grader keeps all four tandem wheels on the ground, even in roughest terrain . . . driving, pushing, working all-the-time.

Inside the axle-carriers, driving-axles float "free", mounted in anti-friction bearings. They are fully protected from abnormal shocks and stresses of rough terrain . . . secure against breakage and undue wear.

Ask for demonstration

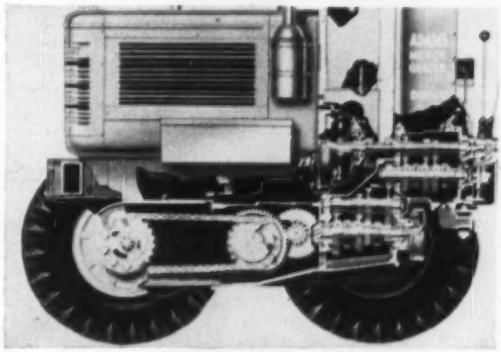
See how Adams' 15* speeds, with power delivered thru 100% anti-friction drive, give these machines *bonus* push-power . . . a capacity for work no other grader can match. Let us explain how an Adams saves you money on fuel and repairs . . . how it can keep producing for you week-in and week-out. 6 models, 60 to 190 hp. Choice of General Motors or Cummins diesel engines on 5 larger models. Call or write for all the facts.

**190 hp POWER-Flow 660 provides infinite number of power-speed combinations (to 27.4 mph) thru torque converter. 60 hp Model 220 has 9 speeds forward, with optional creeper gears . . . best in its class.*

Adams, POWER-Flow—Trademark AG-1231-H b

All gears and shafts in the Adams transmission turn on ball-, needle-, roller-, and tapered-roller-bearings.

Main rear axles are mounted on anti-friction bearings, and carry no grader weight. Instead, rear-end weight is supported on concentric, tubular axle carriers. Inner axle carriers are bolted to tandems; outer carriers to final drive housing. Thus, tandems can oscillate freely — without putting stress on main axles. 100% anti-friction drive increases available work-power, reduces operating costs.



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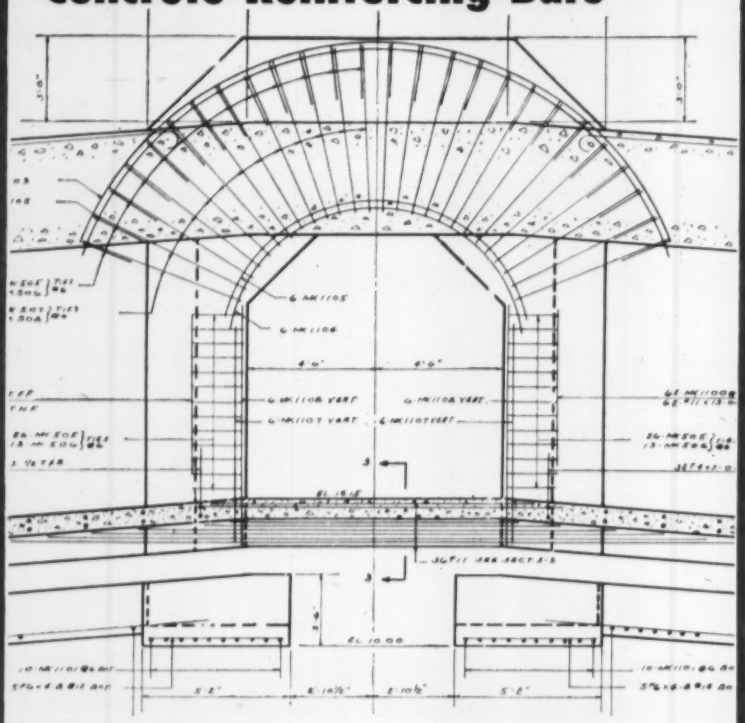


Connors' outstanding reputation for reliable, personalized service has been earned by performance on jobs, large and small, for fifty years.

For precise detailing, fabrication and delivery as scheduled always specify

Connors' Reinforcing Bars

Call, wire or write the Connors Steel Division's West Virginia Works, Huntington, W. Va., or Connors Works and headquarters at Birmingham, Alabama.

HKP CONNORS STEEL DIVISION
H. K. PORTER COMPANY, INC.

Hydrographic Survey Recorder Weighs 40 lb

A portable depth recorder for use in hydrographic survey work, weighing less than 40 lb, is on the market.

In normal operation the transducer and mounting tube combination known as Model ES-130 may be hand-held over the side of a small boat or secured by other means.

Operating on a fixed acoustic frequency within the band 200 to 220 kc, the recorder has a depth range of 245 ft with four scale ranges of 65 ft each. The equipment is designed to a sound propagation velocity of 4,800 fps and normally operates from 6 v or 12 v dc (nominal) power source.

Priced at $1,175 fob New York, equipment included with the ES-130 consists of a recorder unit transducer with 25 ft of cable and a 6 ft mounting tube and 8 ft of battery cable—Bludworth Marine Div., Kearfott Co., Inc., 1500 Main Ave., Clifton, N. J.

Big Backhoe Developed

Developed to answer the need for a more powerful, bigger capacity and deeper digging hoe, the Link-Belt Speeder Corp. has announced what it describes "the only production model 3 yd hoe attachment available in the shovel crane industry".

The attachment is designed for use with the company's 3 yd Model K-608, introduced in 1956. The attachment has a 30 ft boom, plus arm and bucket, to provide a maximum reach of 51 ft 6 in., and a digging depth of 31 ft, 10 in. Cutting width, with side cutters is 5 ft. Link-Belt Speeder Corp., Cedar Rapids, Iowa.

Here's tandem push-power in one easy-to-spot machine handled by one operator

Big B Tournapull, with 27-yd. Fullpak* scraper, picks up heaping load *fast* with Twin-C pushing. New tandem-engine pusher provides enormous power, plus speed to match rubber-tired scrapers. Owner benefits from economies of one-machine operation.

Big push-plate of Twin-C is raised and lowered by electric control. Operator can center plate on scraper push-block, to assure solid contact at all times. Once push starts, plate "floats" . . . automatically adjusts to match movements of scraper push-block.

Since the trend in earthmoving today is to bigger-yardage contracts, you are using more and more of the larger-size scrapers . . . machines of 18 to 27-cu. yd. capacity. To push-load these giants efficiently, contractors are finding it necessary to double-head their crawler pushers.

While this practice produces extra drawbar pull, it seldom proves practical. First, there is the problem of synchronizing the actions of 2 operators and 2 machines. Time is lost in positioning, and tandem crawler teams cannot effectively match the speed of rubber-tired scrapers. Finally, there's the added expense of operating the extra machine, with its extra operator.

LeTourneau-Westinghouse, alone in the earthmoving field, offers a unit that solves these problems. The job-proved Twin-C* pusher provides: a) synchronized tandem push-power, b) a speed range to match rubber-tired scrapers, c) single-unit ease in positioning, and, d) economy of one-machine, one-man operation.

Proven drawbar pull of up to 64,500 lbs.

Twin-C provides the combined horsepower output of two 210 hp GM diesels on one machine. With its 40 tons of tractive weight, its tires over 7′ high and 2½′ wide, this machine develops 64,500 lbs. of drawbar pull.

Consider, also, Twin-C's many additional advantages, besides its tandem power (a "first" in the rubber-tired pusher class). This pusher can develop speeds up to 20 mph forward, 5.8 in reverse. Air brakes on all 4 wheels provide 3,690 sq. in. of braking surface, for quick stops and fast maneuvering.

Positive, Tournapull*-type steer

There's new steering ease, too, with the Twin-C. Operator can make 90° turns in tight quarters, because positive power-steer is applied through geared kingpin at base of yoke. It's the proven LeTourneau-Westinghouse steering principle used successfully on Tournapull-Scrapers all over the world. Front and rear sections line up automatically when steering power is shut off.

Power-lift on push-plate

Twin-C's big, electric-controlled push-plate is easily raised or lowered by operator to make on-center connection with every push-block. Once push starts, plate "floats" . . . automatically keeps contact with scraper until bowl is filled.

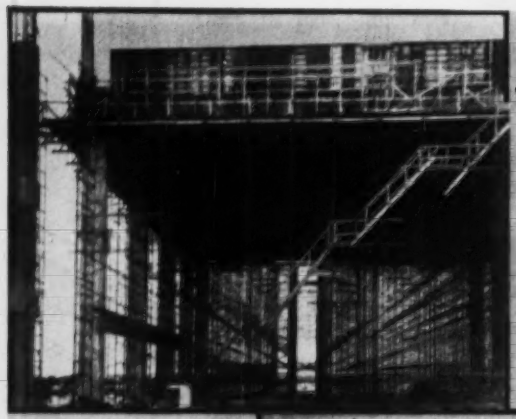
If tandem pushing is becoming the accepted practice on your spreads, find out more about the new Twin-C. Call or write for full specifications on this powerful pusher.

*Trademark TW-1133-DC-1

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

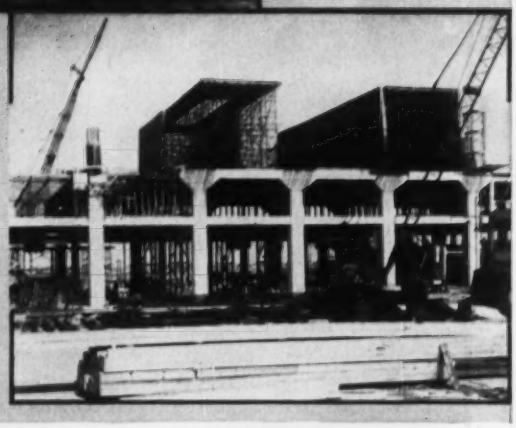
A Subsidiary of Westinghouse Air Brake Company

WHERE QUALITY IS A HABIT



BEAVER ADVANCE

TWA Hangar — Kansas City, Mo. MacDonald-Creighton Construction Co., General Contractor



TWA Hangar — Idlewild Airport, N. Y. Joint venture, Grove, Sheppard, Wilson & Kruge; The MacDonald Construction Co., General Contractors

"REPEAT PERFORMANCE BY COMMAND"

Detailing the reasons for superior scaffold performance is easy enough to do, but isn't it easier to *experience exceptional performance* again and again on your own construction jobs?

The ADVANCE scaffold shoring applications illustrated are for TWA hangars, but at widely separated geographical locations. Photo A is a project at Kansas City; Photo B is a similar hangar under construction at New York's Idlewild Airport. The fact that the ADVANCE Shoring System was used at both locations is not mere coincidence. Here's what job superintendents report:

- ADVANCE scaffold assembles faster — replaces as many as 12 wood or steel shores that require twice as much time to place.
- ADVANCE scaffold towers are self-supporting — eliminate additional lateral bracing — greatly reduce nailing requirements . . . afford more freedom of worker movement and assure maximum safety.
- ADVANCE Roller Assemblies enable speedy removal and relocation of forms from one pour area to another with substantial savings in manpower.

These and many more reasons justify "REPEAT PERFORMANCE BY COMMAND." Outstanding *value* makes ADVANCE the accepted name for *quality scaffold, engineering service* and on-the-job PROFITS!

Beaver-Advance CORPORATION
Ellwood City, Pennsylvania

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Publications

Self-locking nuts—Advantages, applications, description and tables listing sizes, treads and types of self-locking nuts are given in a 4-page folder from the Automatic Nut Co., Inc., Lebanon, Pa.

Grating and treads—Electroforged, riveted, rectangular, diagonal, "U" type and "I" interlocked gratings and treads are described in a bulletin that includes tables on safe loads and information necessary to specify type required. Bulletin No. 2527, Grating Dept., Blaw-Knox Co., P.O. Box 198, Pittsburgh 30, Pa.

Aluminum windows—Folder includes three catalogs describing curtain walls for two-story or multistory buildings; aluminum stock, screen, recessed and monumental entrance doors; also church, ribbon, custom and projected windows. Marmet Corp., Wausau, Wis.

Overhead doors—A design and specification guide for Barcol Overdoors is divided into six indexed sections containing photos, detail drawings, data and discussion of application problems covering conditions under which equipment is and is not recommended. Barber-Colman Co., Dept. 5B, Rockford, Ill.

Treated lumber and piling—A 100 page illustrated manual containing certain specifications of the federal government, of various New England and Middle Atlantic states and of New York City on treated lumber and piling is available. Martin Piling & Lumber Co., 1070 Morris Ave., Union, N. J.

Small size truck—New literature describes the M-30 prime-mover designed for fast delivery of concrete on bridge construction, piers, warehouses and other jobs. The bulletin illustrates features such as hydraulic torque converter drive, easy steering and braking, and dump action controlled from the driver's position. The Prime-Mover Co., Muscatine, Iowa.

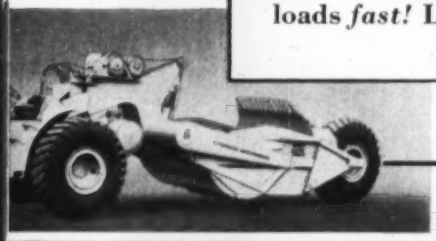
Explosives—Facts and figures to help users of explosives, as well as descriptions of the company's complete line of products, are included in a new edition of a 48 page catalog. The publication contains more than a score of tables and over 100 illustrations to provide specific assistance in selection of explosives. Atlas Powder Co., Explosives Div., Wilmington 99, Del.

(*Publications continued on page 80.*)

Why new 27-yd. B FULLPAK* scraper

is your best bet for low-cost dirtmoving

The all-new LeTourneau-Westinghouse 28 mph B Tournapull®, with 27-yd. Fullpak scraper, gets *big* loads *fast!* Lower, wider, bigger . . . this giant dirtmover delivers more pay-yards at lower-net-cost than any scraper on the market. That means more profits for you . . .



Job-proven design

The new low, wide B Fullpak scraper incorporates popular high-production features that have been job-proven in world-wide service — for over a year — on the modern 18-yd. C Fullpak. Shallow bowl design means Fullpak needs less force for *lifting dirt* . . . can apply more to *cutting*, and *pulling*. Bowl bottom has only 1° rise when loading. With dirt flow nearly horizontal, quick-loading 27-yd. Fullpak packs full-capacity, low-void payloads fast!

Better boiling

Tailgate has curved top, to roll material up and forward into a high heap. Side-sheets sweep higher in center, to reduce spillage and deflect material into corners of apron and tailgate. High, deeply curved apron adds bonus dirt-capacity . . . carries a big part of load forward in its "belly", for better weight distribution, lower center of gravity, and improved stability and traction.

Faster loading . . . unloading

High apron lift (7'1" above blade) speeds loading and unloading. Smooth, streamlined side-arms and side-sheets prevent chunks from being trapped. Positive forward-ejection tailgate has plenty of power to force out sticky clay, mud, rocks — wipes bowl clean in a single pass.

90° turns

Electric steer, through geared kingpin, permits short 90° turns. New B Fullpak makes continuous 180° turn in area only 39'10" wide. Also, positive kingpin steer enables operator to swing prime-mover from side-to-side in soft ground to let drive wheels find better footing and "walk" unit out of mud or loose sand.

Better visibility

Cockpit is raised to give Tournapull operator clear view of blade, load, pusher. Road ahead is always in full view. Permits safe, high-speed cycles.

Get all the facts

Get full details on the new B Fullpak — and on other job-tested LeTourneau-Westinghouse earthmovers. See why they'll help you move dirt faster, easier, at lowest-net-cost-per-yard. Write or phone for all the facts.

*Trademark BP-1403-G-b

LeTourneau-WESTINGHOUSE Company, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

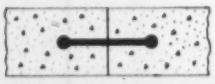
How to Choose Waterstop for optimum performance in concrete joints

Basic Design And Resilience Most Important Factors

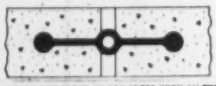
The principal function of waterstop is to keep concrete joints watertight where hydrostatic water pressure is present. To be effective, and to perform its function under widely varying conditions, the waterstop must:

1. **Be designed in such a way that it will maintain a "pressure seal" when the joint is opened up or compressed, or when hydrostatic pressure is exerted against it.**
2. **Be made of a material that is inherently stable and resilient...that will retain its resiliency and strength under wide ranges of temperature.**

There is general agreement by many governmental and private specifying authorities, after years of testing and actual installation, that the dumbbell design of waterstop (below) is mechanically superior to any which has been developed to date. The design provides a self-sealing action, because as the concrete contracts and the joint opens up, the outer edges of the dumbbell bulbs become more tightly engaged with the concrete, insuring a tighter seal as the tension increases, due to movement either in the joint or increasing water pressure on one side of the joint. In effect, the greater the longitudinal pull or pressure on one side, the more tightly the dumbbell ends are pulled and squeezed against the concrete. The simpler dumbbell design of the rubber waterstop allows full strength and contact with the concrete surrounding the waterstop. The larger design also provides for maximum strength to resist higher pressures on the web of the waterstop across the joint opening.



9" DUMBBELL TYPE EMBEDDED IN CONCRETE WITH A CONSTRUCTION JOINT



9" HOLLOW BULB TYPE EMBEDDED IN CONCRETE WITH AN EXPANSION JOINT

Rubber and vinyl are the most commonly used waterstop materials. For the majority of applications, rubber is the most satisfactory material. Being a thermosetting material, rubber is more resilient and "live"...will maintain a constant pull against the retaining edges (bulbs) as the joint opens up or water pressure increases. Vinyl is a thermoplastic compound and tends to take a "set" after it has been stretched, will float in the joint cavity, and have less resistance to the passage of water. When higher temperatures are present, such as in oil storage tanks, where oil is kept at temperatures around 150°F., the vinyl material, unless specifications are rigidly written, will soften and lose strength, causing a failure of the waterstop.

Field Splicing of Dumbbell Type

Servicised Products Corporation has developed a new Union which provides a simple method of joining the ends of dumbbell waterstops, making it just as fast and easy to field splice rubber and neoprene waterstop as the joining of the polyvinylchloride types.

The Union is made in the same cross-section, and from the same material as the waterstop. It is hollow, except for a solid web at the center. After adhesive is applied to the waterstop ends, they are inserted in the Union and pushed against the centering web. The splice is then clamped together until the adhesive has set. This completes the splice.

Dumbbell type rubber and neoprene waterstop are fully described in a special Waterstop Circular available from Servicised Products Corporation upon request. The Union and an interesting new development, Split Type, are also illustrated and described in the circular. Write for it today.

SERVICISED PRODUCTS CORPORATION
6051 W. 65th Street, Chicago 38, Illinois

. . . Publications

Stainless steel—Over 20 tables on stainless steel strip and sheet giving detailed data on corrosion resistance of various stainless steels, fabrication properties and weights per lineal foot in various widths and gauges are contained in a 32 page booket. Sections on the proper selection of stainless steel grades and an industry index of applications also are included. ADVERTISING DEPT., ALLEGHENY LUDLUM STEEL CORP., OLIVER BUILDING, PITTSBURGH 22, PA.

Fire protection systems—The nature and advantages of fire protection systems are explained in a 36 page illustrated bulletin. An explanation and examples of insurance savings and other economic benefits are included. The line of automatic fire protection components and systems is described and pictured. Fixed-temperature, rate of temperature rise, and alarm and control systems are covered. BULLETIN 66, AUTOMATIC SPRINKLER CORP. OF AMERICA, YOUNGSTOWN 1, OHIO.

Steel buildings—An Armco manual describes over 5,000 steel building sizes in types ranging from shed roof to gable roof. Sections cover panel construction, erection, fire and lightning protection, expansion, rearrangement and interior treatment and finish. MANUAL SX-2056, PRODUCT INFORMATION SERVICE, ARMCO DRAINAGE & METAL PRODUCTS, INC., MIDDLETOWN, OHIO.

Dewatering—A description of the advantages of predraining excavations, along with photos and text illustrating various jobs where dewatering was used are contained in a 25 page catalog from AMERICAN DEWATERING CORP., 140 CEDAR ST., NEW YORK 6, N. Y.

Stud welding—Information on how to get best results from stud-welding equipment, including a trouble-shooting chart with procedures for correcting unsatisfactory conditions, is contained in an operation manual. A section is devoted to welding large-diameter studs. Information is given on disassembling, assembling and maintaining Nelson equipment. OPERATIONAL MANUAL NO. 5, NELSON STUD WELDING DIVISION, GREGORY INDUSTRIES, INC., LORAIN, OHIO.

Electrified concrete floors—An explanation and discussion of Flexicores electrified cellular concrete floor system is given in a 32 page booklet. Design data for typical 4-story and 30 story office buildings are included. A section describing the use of Conduflor electrical

GUESS WHAT'S GOING UP HERE!

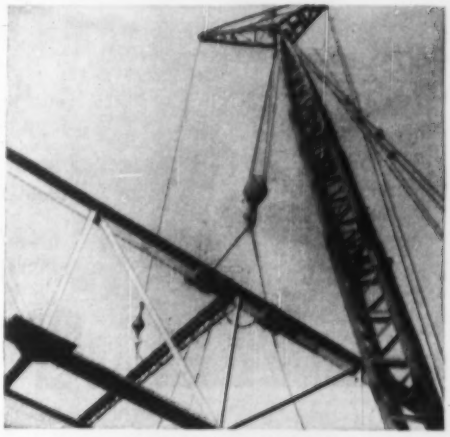
☐ Office Building ☐ Warehouse ☐ School
☐ Factory ☐ Store ☐ Hospital

Happens to be a school building, but any other guess would be no reflection on your good judgment.

For Sheffield Open Web Steel Joists speed construction and cut costs in *every* type of building. Versatility is their middle name. They come in longspan and shortspan sizes. Their structural and design possibilities are as high, wide and handsome as the imaginations of architects, engineers and contractors.

Sheffield Steel Joists combine strength and light weight for any type of floor, roof and ceiling. They're quickly installed and furnish support for a working platform right away. The underslung, open web design allows fast placement of pipes, conduits and ducts. Other trades can begin work promptly. The need for slow, expensive falsework is eliminated entirely. And the light weight of Sheffield joists makes possible lighter construction of columns, walls and foundations with full strength rating.

Learn more about how these advantages can be turned to your benefit. Get in touch with your nearest Sheffield office.



Going up . . . faster: Sheffield joists are easily handled, quickly installed. They're quickly available, too — thanks to Sheffield's strategic locations.

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Open Web
STEEL JOISTS
Standard and Longspan

SHEFFIELD DIVISION ARMCO STEEL CORPORATION SHEFFIELD PLANTS: HOUSTON • KANSAS CITY • TULSA

Wrought Iron's corrosion resistance and easy workability earn top priority in these highway applications

a Wrought Iron railings offer high impact resistance because of their great structural strength. Easy to work and easy to weld, wrought iron railings stand up well in corrosive atmospheres.

b Wrought Iron drainage lines assure uninterrupted service—so essential in keeping high speed traffic lanes open. No costly maintenance or repairs with this durable piping material on the job.

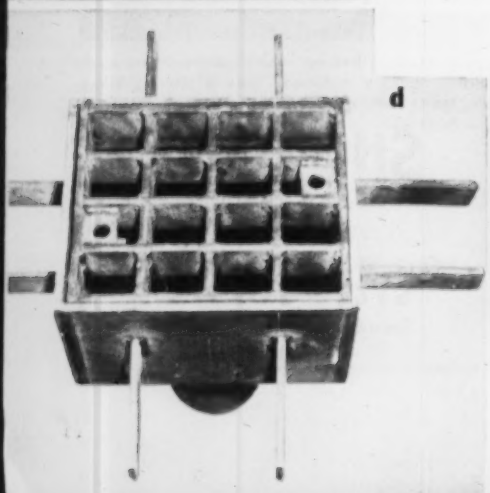
c Wrought Iron snow melting systems like the one on this bridge ramp, combine corrosion resistance with rugged strength, low coefficient of expansion with concrete, and easy fabrication properties.

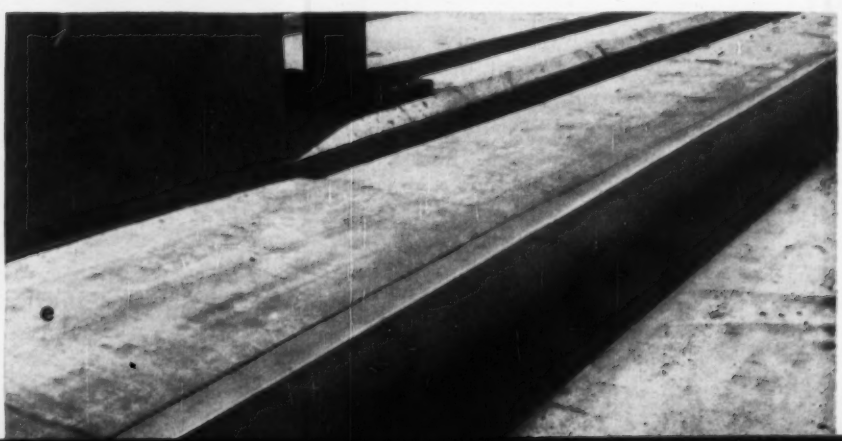
d Wrought Iron scuppers serve as low-cost catch basins in bridge drainage systems. Cindering and salting and alternating wet and dry conditions have proved relatively harmless to this rugged material.

e Wrought Iron curbing preserves concrete against icing salts, brine slush, drainage water and corrosive atmosphere. Wrought iron's resistance to corrosion stems from a unique structure of glasslike iron silicate fibers. Write for booklet, *Wrought Iron for Highway Construction*. A. M. Byers Company, Clark Building, Pittsburgh 22, Pa.

BYERS Wrought Iron Tubular and Hot Rolled Products

ALSO ELECTRIC FURNACE QUALITY STEEL PRODUCTS





fittings and information covering floor openings, fireproofing and suspended ceilings are also given. FLEXICORE CO., INC., 1932 E. MONUMENT AVE., DAYTON 1, OHIO.

Cement mortar—Information on mortar preparation, placing procedure and general instructions for gun-applied linings in oil refineries and similar industries are contained in a 24 page manual. Selected aggregates, thermal conductivities of Lumnite concrete and strength curves are also included. "Lumnite Cement Mortar Manual," LUMNITE DIVISION, UNIVERSAL ATLAS CEMENT CO., 100 PARK AVE., NEW YORK 17, N. Y.

Steel strapping ties—The applications, advantages, and economy of steel strapping used as concrete-form ties is outlined in a 4 page folder from SIGNODE STEEL STRAPPING CO., 2600 N. WESTERN AVE., CHICAGO 47, ILL.

Steel buildings—Frameless, rigid frame, shed roof and utility steel buildings are illustrated in a new manual that also includes an explanation of the Steelox panel method of construction. Manual SX-14456, Product Information Service, ARMCO DRAINAGE & METAL PRODUCTS, INC., MIDDLETOWN, OHIO.

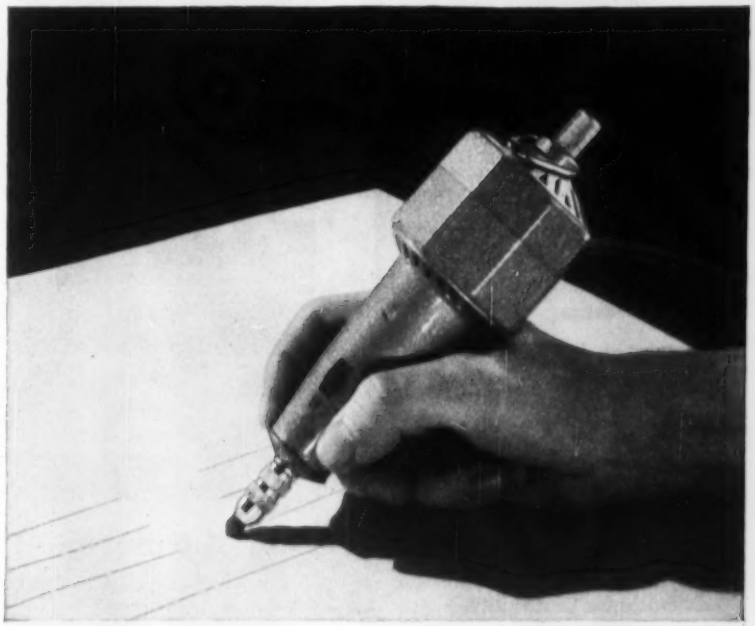
Blacktop Maintenance—Bulletin HH-28 on the Littleford Model 700 Trail-O-Patcher bituminous mixer is now available. The bulletin presents facts and diagrams on the redesigned machine. LITTLEFORD BRO., INC., 453 E. PEARL ST., CINCINNATI 2, OHIO.

Tractor shovels—Catalog MS-1102, now available, tells through pictures and story the operating, performance and maintenance advantages provided by Allis-Chalmers HD-16G and HD-21G tractor shovels. ALLIS-CHALMERS MFG. CO., CONSTRUCTION MACHINERY DIV., MILWAUKEE, WIS.

Bituminous paver—The Vibromatic bituminous paver is described in bulletin No. 655-2 issued by Pioneer Engineering. In addition, the bulletin contains complete specifications, dimension drawings and numerous photographs, both of on-the-job and of the machine-feature varieties. PIONEER ENGINEERING, DIV. OF POOR & CO., INC., 3200 COMO AVE., MINNEAPOLIS 14, MINN.

Roof decks—A 20-minute full-color film entitled "Race Against Time" studies the designs of five new school systems using Tectum roof decks and ceiling construction. TECTUM CORP., 105 S. SIXTH ST., NEWARK, OHIO.

DRAFTING TRENDS



New erasing machine for fast, clean, effortless erasures

The idea of erasing machines certainly is not new. However, it wasn't until the Sovereign was developed that so many time-saving and drafting efficiency features were combined into one product.

Distributed by POST, the smooth-running, light weight Sovereign erasing machine can be used as accurately and effortlessly as a pencil point. Even for fine lines, just a dab with an easy-to-handle Sovereign gives a clean, neat erasure without damage to the drawing.

The speed of the rapidly rotating eraser does the work, not pressure. In fact, if too much pressure is used, the machine automatically stalls, thereby safeguarding your drawing. Operation is cool, as the Sovereign definitely will not overheat.

Using a Sovereign is just as easy as reaching for an old fashioned eraser . . . and much more convenient. Curved to fit the hand, it incorporates many design features of special appeal to engineers and draftsmen. For example, the hollow armature shaft takes a full 7" core eraser which feeds through an instantly adjustable chuck. The extra long eraser eliminates those frequent, annoying changes often associated with ordinary erasing machines using short erasers. (When a change is finally made, the chuck cuts replacement time to *less than 10 seconds.*)

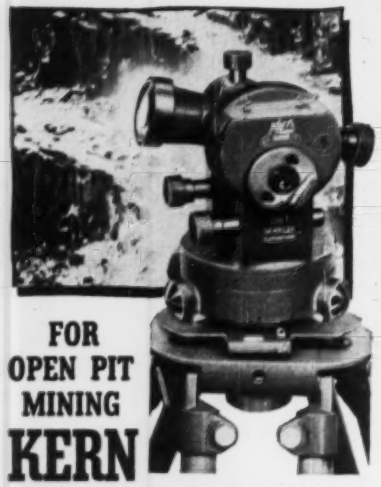
The large loop hanger is ideal for hanging the Sovereign within easy reach of the board. Or, if the erasing machine is used frequently, the octagonal shape design permits the draftsman to lay it on the drawing board without fear of it rolling off.

For more information on the Sovereign Erasing Machine, see your POST dealer or write to the Reader Service Division of the Frederick Post Company, 3658 N. Avondale Ave., Chicago 18, Illinois.

POST

SENSITIZED PAPERS & CLOTHS • TRACING & DRAWING MEDIUMS • DRAWING INSTRUMENTS & SLIDE RULES
ENGINEERING EQUIPMENT & DRAFTING SUPPLIES • FIELD EQUIPMENT & DRAFTING FURNITURE

KERN INSTRUMENTS
RIGHT
for the JOB



FOR
OPEN PIT
MINING
KERN
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Down-to-fundamentals design ... made for portability, rugged use ... Precision results in simplest, quickest way.

Only 6 lbs. in weight, 7" high, including carrying case.

READINGS at a GLANCE

- Fast, effortless operation.
- Direct to 10', Estimation to 1'.
- Automatically gives arithmetic mean of two readings at opposite circle points

FOR UNDERGROUND OPERATION

- Illuminated Traverse Targets easily interchanged with instrument.
- Water and dust-proof.
- Exceptional clarity of optical system—50% brighter image through Kern AR coating.

★

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PROMPT, RELIABLE SERVICE
FACTORY TRAINED PERSONNEL
KERN and ONLY KERN
OFFERS YOU
the LATEST DESIGNS of
Dr. Henry WILD

Kern SWISS
The FINEST in SURVEYING EQUIPMENT
KERN INSTRUMENTS INC.
120 Grand St., White Plains, N.Y.

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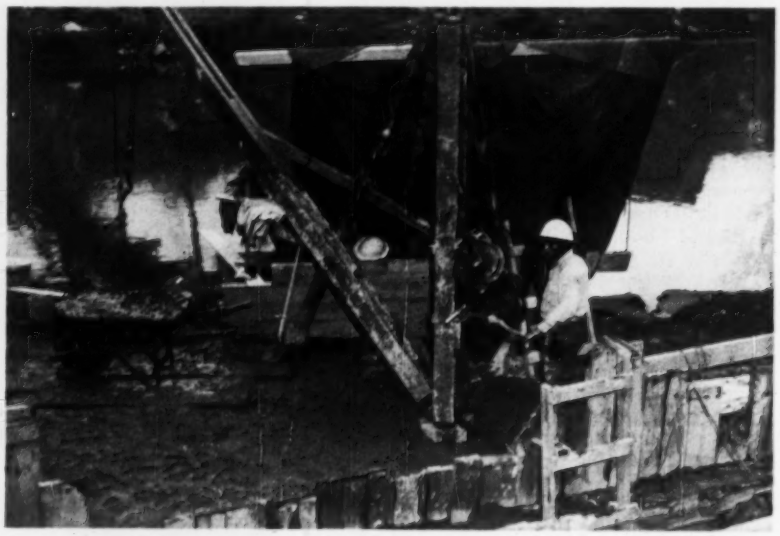
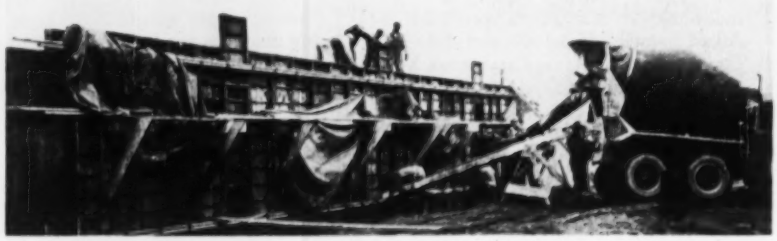


Slow But Sure — On an $80 Million Project

The Allegheny County Sanitary Authority, builder of $80 million worth of treatment plant and intercepting sewers in tunnel and open cut for Pittsburgh, Pa., and environs (ENR Apr. 11, p. 46), submits this picture not as an example of the very latest of construction methods, but rather as the extremely primitive kind of operation that can at times be the best way to do a job.

At this point, the Chartiers Creek line of their 67 mile system had to get under a house and a retaining wall. The open cut either side of the obstruction had to become a tunnel for 140 ft. The distance was tunneled completely in liner plates, all excavation being done by hand. Muck loaded in a wheelbarrow in the tunnel had to be wheeled back to the shallow shaft where it was raised as pictured to the surface for disposal. The hand-operated winch raised and lowered the wheelbarrow.



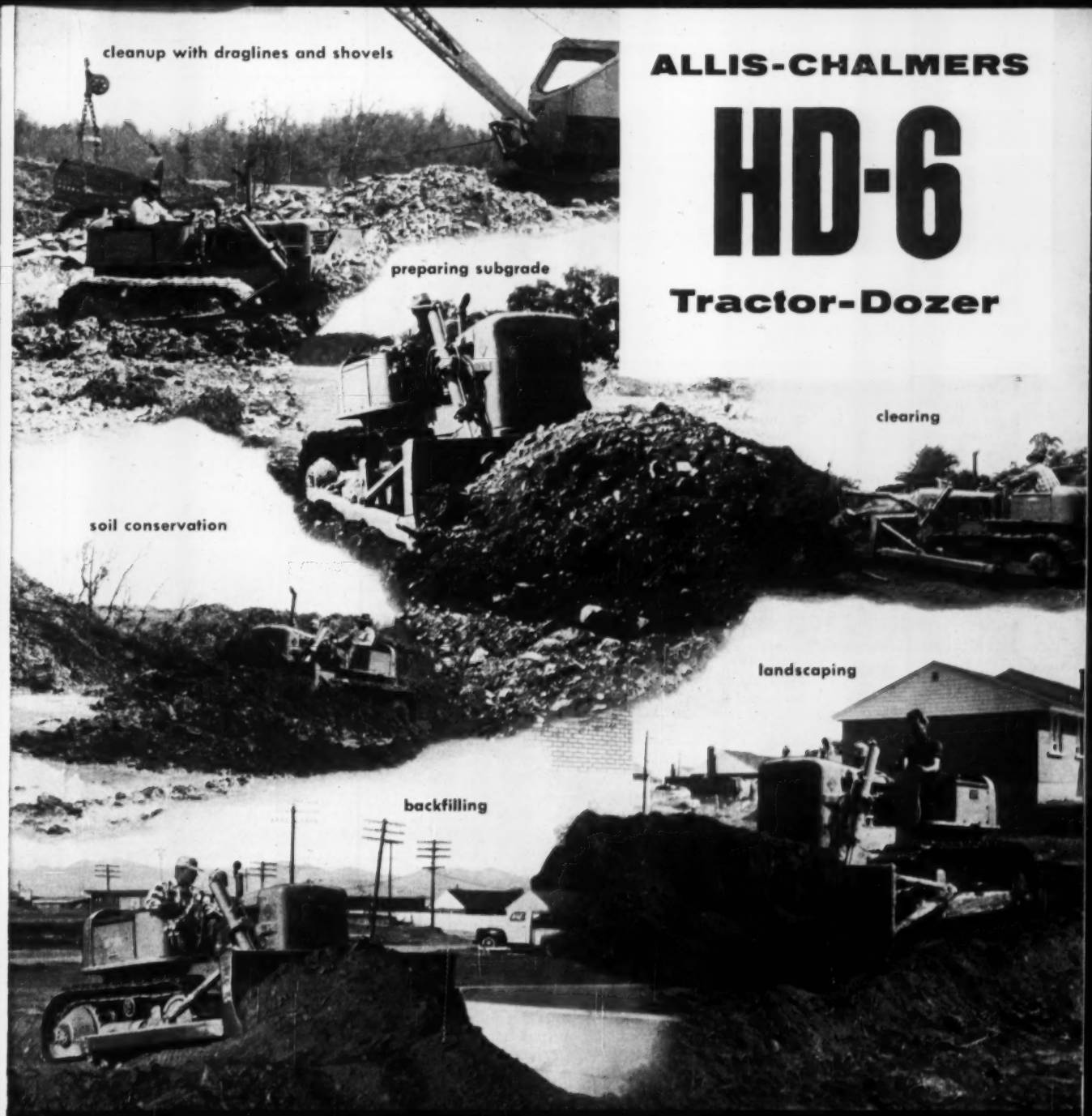
High, Long Pours Made Through Pockets

Concrete for a 10 million gallon water reservoir was placed in continuous pours of 50 ft long sections in heights up to 18 ft. Pours were made through pockets in the forms, the panel replaced and the next lift completed until the desired height had been reached.

Some 2,000 cu yd of concrete were used for the 18 ft high, 15 in. thick outer wall and the 13 ft high, 12 in. thick inner wall that divided the reservoir into two sections. To achieve a continuous bond with rubber waterstop, the 50 ft long sections were placed in leapfrog pours.

Owner of the $1 million reservoir is Granite City Steel Co., Granite City, Ill. Contractor is M. H. Wolfe & Co., Granite City.

(*F&O con't. on p. 86*)



ALLIS-CHALMERS

HD-6

Tractor-Dozer

Handles all these construction jobs faster, easier than anything near its size!

You can <u>see</u> it . . . but there's only one way to <u>prove</u> it—on **your** job!

BUILD

AT LESS COST

You can save as much as $2 per square foot with Steelcraft standard steel buildings. Skillful pre-engineering cuts both labor and material costs, saving thousands of dollars over other construction methods.

FASTER

You can get fast delivery and complete erection service from your local Steelcraft steel building dealer. And, he can erect your building in only *weeks* instead of months because all parts are readily available from one source . . . all parts are predesigned for fast field assembly. Swift completion can put you in business faster . . . let you expand faster . . . meet space emergencies faster.

BETTER

Steelcraft buildings are *permanent* and provisions are "built in" for economical future expansion. You can buy to suit your exact needs . . . any width, height or length, with spans up to 80 feet . . . choice of wall and roof materials, doors, windows, skylights, insulation.

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Standard Steel Buildings

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describing building types, construction details, and applications

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I want to find out how to build at *less cost, faster, better.* Rush me your new catalog of STEELCRAFT STANDARD STEEL BUILDINGS.

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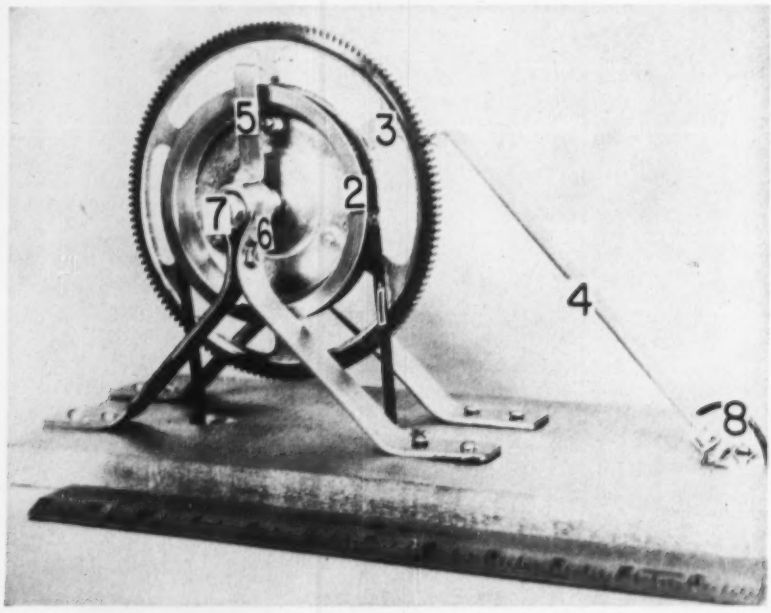


Inexpensive Maximum Water Stage Recorder

An effective device to record maximum water stage in streams is made up of parts costing approximately $10, not including a float and counterweight. The inexpensive indicator can be used at stream-gaging stations where continuous records are not being maintained, or in conjunction with water-stage recorders to insure peak flow records in case of recorder failure. It may even be used in open stream channels where construction of expensive gaging stations is not justified, provided the instrument is protected from wave action and debris.

The simple gage (shown) is in use at the San Dimas Experimental Forest in southern California, giving stage heights that can be read with accuracy to 0.01 ft. The device is operated by a float in a stilling well whose water level fluctuates with that of the stream being gaged. It works as follows:

One end of a steel tape (1), calibrated with 0.2 ft perforations, is attached to a 10 in. float, and the other end to a 1 lb counterweight. The tape passes over a 12-in.-circumference float wheel (2) spined to engage the perforations in the tape.

When the water level goes up, the float is raised causing the wheel to be rotated to the left by the counterweighted tape. A ratchet (3) and pawl (4) attached to the float wheel prevent the float from dropping as the water recedes. Maximum water stage is then read at the zero indicator (5). The float is returned to the water by releasing the pawl.

The ratchet is a 6 in. dia brass spur gear with 144 teeth. The tip of the brass pawl is beveled on the underside and bent to engage the ratchet at a right angle. The other end is attached to a butt hinge, and a curved eight-penny nail (8) prevents the pawl from being left in a disengaged position.

A shaft (7) made of a $\frac{3}{8}$ in. machine bolt and nut runs through $\frac{3}{4}$ in. tubing around which the supports (6) have been formed. The zero indicator with its reading tip beveled to a point completes the recorder.

The device was developed by Lowell A. Andrews, Forestry Aide, California Forest and Range Experiment Station, which is maintained by the Forest Service, U. S. Department of Agriculture, in cooperation with the University of California, Berkeley, and the California State Division of Forestry.

Stainless Steel Piping Used for Plastics Plant

Polyethylene manufacture requires an absolutely leakproof, noncorrosive piping system to prevent contamination.

At the Koppers Co. polyethylene plant in Kobuta, Pa., stainless steel pipe was picked to do the job. And instead of the thicker pipe with conventional threaded fittings, Koppers used a thin-wall stainless steel pipe which featured welding at permanent joints and flange fittings at those that may be changed later. The joints to be welded were aligned by a simple connector that could be expanded into a flange.

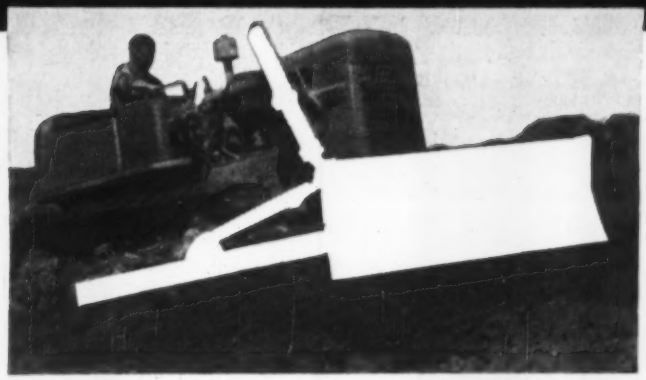
65 belt hp!
up to 15,500 lb drawbar pull!
forward speeds from 1.5 to 5.5 mph!
reverse to 4.1 mph!

ALLIS-CHALMERS

HD-6

Tractor-Dozer

MORE POWER—BETTER DOZING SPEEDS—BIG-DOZER DESIGN—NEW HANDLING EASE!

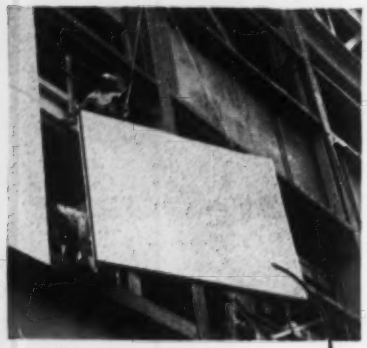


Only dozer of its size with these basic advantages . . . engine-mounted rams, long push beams, fewer linkage points (only 2 instead of 5 or 6). These big-dozer features all combine to provide more accurate, gouge-free dozing . . . longer equipment life.

Convenient rotary-valve blade control makes the HD-6 the easiest handling dozer of its size. With more than 5½ feet of track on the ground, it has outstanding flotation . . . yet turns easily in any terrain. The HD-6 also combines large, low-set front idlers with a blade snugged close to the radiator guard . . . to provide balance that means better dozing, more work done under any conditions!

You can <u>see</u> it . . . but there's only one way to <u>prove</u> it—on **your** job!

Building going up ...costs coming down

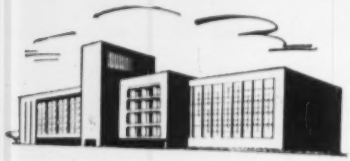


Marietta

CONCRETE WALL PANELS

Here's a new, modern building material that's slashing construction time and labor costs on every job. Marietta concrete wall panels are pre-cast in basic sizes either solid or with a rigid insulation core making them equal in "U" value to a 12" masonary wall. Cast-in metal inserts bolt directly to building framework and panels go smoothly together with tongue and groove fit for quick, easy erection in any weather. Pleasing architectural effects result from the broomed or colorful exposed aggregate exterior finishes.

Get the complete story on the many cost-saving advantages of Marietta wall panels . . . save as much as 30% in construction costs on your next building project. Marietta's engineering staff will assist you in your plans. Write for details and literature today.



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How to feed sand to beaches is big problem as . . .

Beach Erosion Gets Spotlight

Representatives of the coastal states and the Great Lakes region of the U. S. are agreed that more financial aid, unity and a coastwide master plan are the sole remedy for erosion to preserve the nation's beaches.

That's the meat that came out of a two day session in Asbury Park, N. J., called by the American Shore and Beach Preservation Association. More than 150 state and local government officials and engineers attended the sessions.

Pounded by wave action, wind and storms, the United States coast line is receding on an average of two feet per year. The sand from the beaches, the beachfront streets and even houses are swept away, costing the waterfront communities millions of dollars in property damage and in lost business.

Major General Charles G. Holle, president of the Beach Erosion Board, pointed to the need for greater federal aid, in a review of Congressional interest in conservation. He called "inadequate" provisions of Public Law 826, 84th Congress. "Although the law provides for some federal aid—when it is approved by Congress—it is not enough for so tremendous and expensive a task," said Gen. Holle. "The law does not provide for beach maintenance, which is in reality the most important phase of shore protection. The requirements for the proper preservation of the nation's beaches should command more federal aid than is now available."

• **Feeding beaches**—The major problems of beach maintenance were discussed by Vice Admiral (ret) W. Mack Angas, now chairman of Princeton's civil engineering department, who said that sand on the beach has to be replenished at intervals, to make up for losses by wave action, the scouring effects of sea currents, high winds and from the occasional hurricane-intensity storms.

"The ocean floor is an excellent source of sand," Angas said. "Sand can be dredged from the sea bottom," he continued, "and it is known that beyond the 30 ft contour, removal of sand would not jeopardize the stability of the existing beach." Sand taken from nearby harbors that are continually dredged can also be utilized as a source. The prime factor that is detrimental to the whole affair is the almost prohibitive cost.

The process of artificially renourishing the beaches is very costly. Dredging equipment, tugs and barges and the maintenance of such equipment runs into such high figures that very few communities can even think about these methods. Hauling sand from inland where it is available is another way of keeping the beach supplied as well as with use of sand fences. The latter method was taken from the snow fence principle. Latest reports indicate that appreciable piles of wind transported sand can be accumulated in this manner.

• **Area task?**—State Senator Frank S. Farley, who is chairman of the New Jersey State Beach Erosion Commission, commented that many waterfront communities, with sparse permanent populations and long stretches of beach can never afford to provide for conservation. "Very few communities can do it alone without outside help," he added.

"Atlantic County, New Jersey has been fighting the problem alone, but only because Atlantic City and its beaches are the county's life-blood. Without the beach—the boardwalk, the fine hotels and the many business establishments might just as well close down."

Senator Farley proposed that all municipalites along the coast unite, and agree to a master plan that would include the entire coastal beach frontage. They could then pool their resources for the benefit of all.

• **Will the law allow?**—Legal questions were brought up. Can the state require that privately owned beaches be properly maintained? Can condemnation proceedings be used to this end?

Ocean tides and currents affect entire coastlines for hundreds of miles. Erosion is not limited to the property lines. Where public beaches are interlaced with privately owned beaches it is necessary that a master plan for beach protection be used. The beneficial jetty on one beach may adversly affect another beach.

The State of Connecticut has successfully used condemnation proceedings and its representatives recommended its use to the other state officials as a possible manner of getting action, from those individuals not cooperating with the state's beach preservation efforts.

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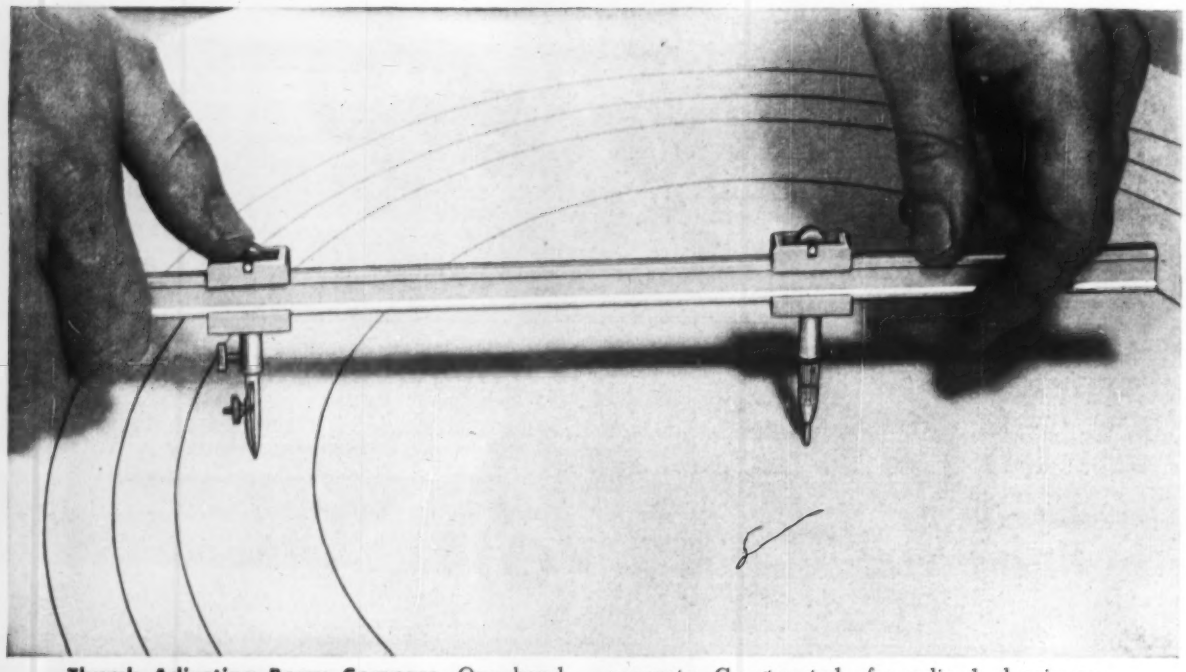

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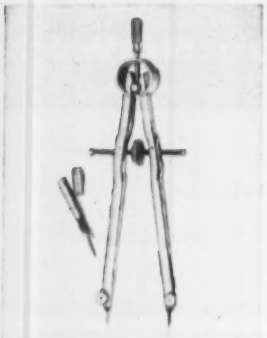

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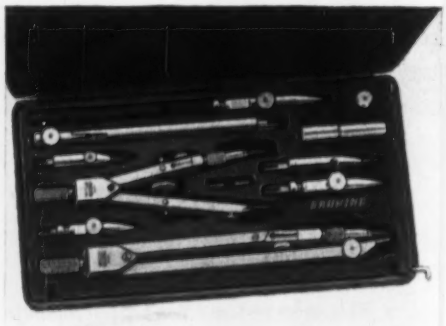

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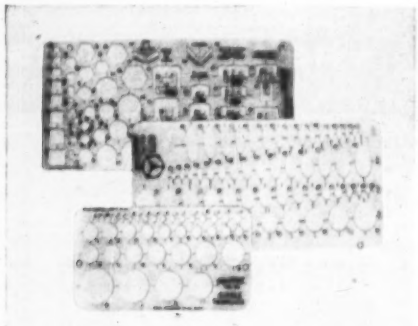

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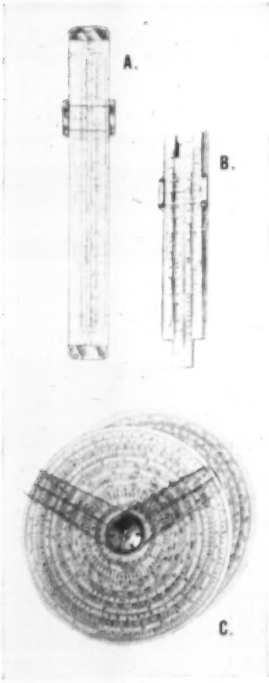

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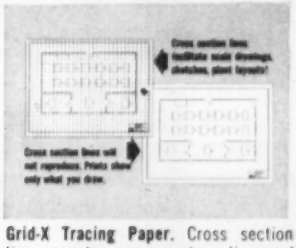

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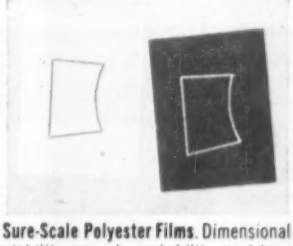

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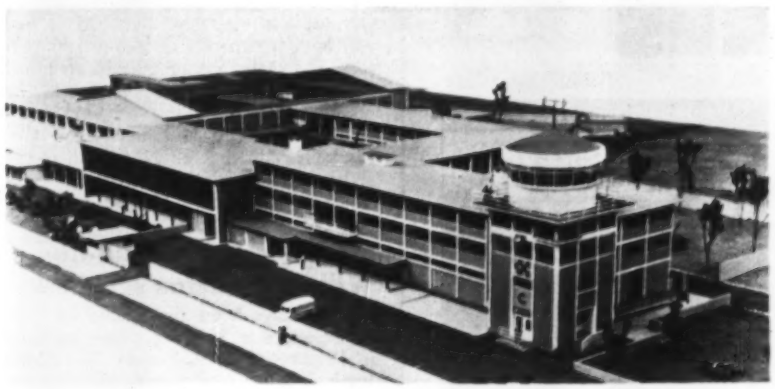
Caracas Has Fancy Interchanges Too

Venezuela's 550-mile long section of the Pan American Highway, now paved —is credited with reducing the driving time from Caracas to the Colombian border from two days to 15 hours.

The airview shows one terminus of the road (coming into the picture at the right), where a complex interchange diverts traffic to city's expressways and streets



Nairobi Airport to be Completed in 1958

At a cost of $6.8 million, the Government of Kenya expects to have one of the most modern airports in Africa when the new Nairobi Airport is completed in 1958. The airport's runway is designed to handle the largest jet airliners to be built.

The terminal building will include restaurants, nurseries, lounges, bank and other facilities to handle over 200,000 passengers expected each year.

10 Story Hawaiian Hotel Will Be One Room Thick

Plans have been announced for construction of a crescent-shaped, 500 to 700 room hotel in Honolulu. The 20 story hotel will be 24 to 36 rooms in length.

In order to give ocean views from one window and mountain scenery from the other for each room, the hotel will have a thickness of only one room. A single corridor running the width of the hotel on each floor will be depressed by two steps below room floor level.

The entire ground floor will be used for parking. Public rooms and lobbies will be on the second floor. A swimming pool and cabanas will also be located at the second-floor level.

The hotel is expected to be completed early in 1959 at a cost of about $10 million. Wimberly & Cooke, Honolulu, are the architects.

Inter-American Congress On Highways Is Planned

The first Inter-American Congress on Construction will be held in Caracas, Venezuela, some time in the first quarter of 1958, according to an announcement by the Venezuelan Chamber of Construction, which will sponsor the event.

Enrique Garcia Galindo, president of the chamber, said that representatives of all countries of the Americas will be invited to attend. Angel Sanchez Lanz has been named chairman of the organizing committee to set up the program.

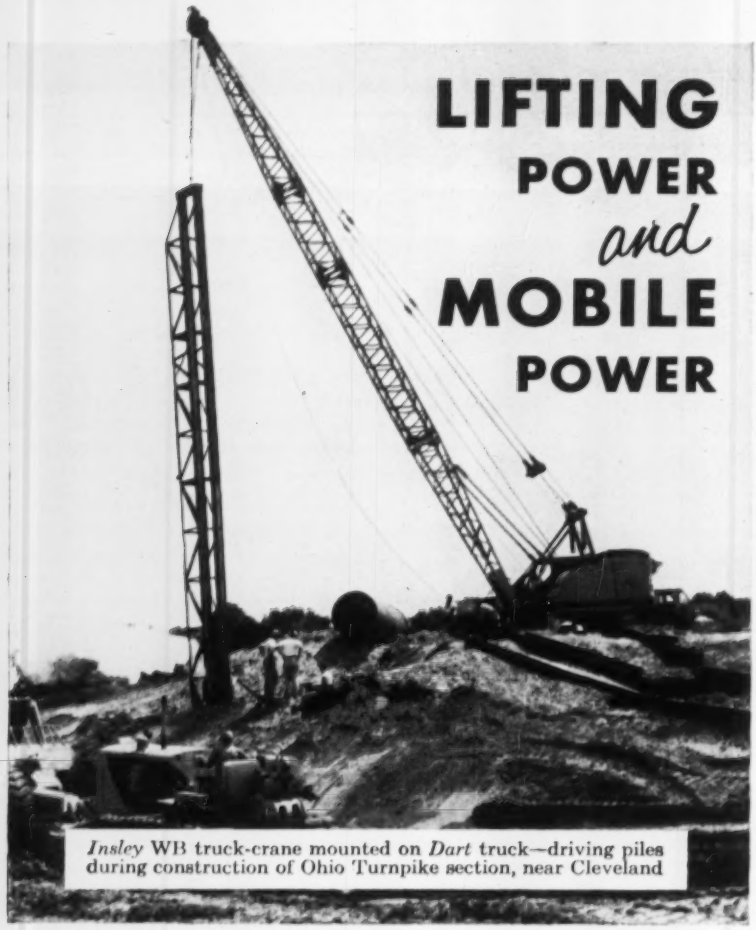
Objectives of the conference will include an interchange between representatives of the various countries of information of common interest on problems of materials, technique and financing.

Simultaneous translation service in Spanish, French, English and Portuguese will be provided.

Paving on First Mileage Of Alaskan Highway Begun

Paving of the first 50 miles of the Alaska Highway in Canada, from Dawson Creek to Fort St. John in British Columbia, will begin this summer, according to the Canadian Department of National Defense.

Cost of the bituminous surfacing will be about $2 million, with the road built



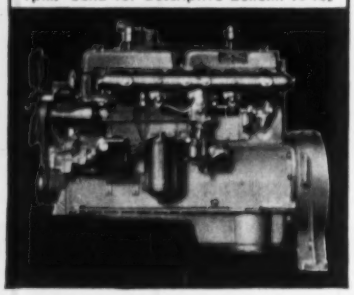
Insley WB truck-crane mounted on *Dart* truck—driving piles during construction of Ohio Turnpike section, near Cleveland

BOTH Crane and Truck have

WAUKESHA ENGINES

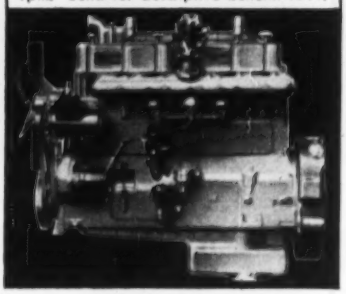
POWERING CRANE (Boom)

Waukesha 140-GK Gasoline—6-cyl., 4½ x 5½-in., 525 cu. in., 160 hp @ 2250 rpm. Send for descriptive bulletin 1548.



POWERING TRUCK (Carrier)

Waukesha 145-GK Gasoline—6-cyl., 5¼ x 6-in., 779 cu. in., 216 hp @ 2000 rpm. Send for descriptive bulletin 1551.



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WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES

to approximate construction standards of the Trans-Canada Highway now under construction across the nation.

Built during wartime for defense, without regard to economic location, the road during postwar years has become one of the most important facilities in development of mineral areas in the Canadian northwest territories. In addition, it has provided access for several crude oil and natural gas fields in northeastern British Columbia.

Roof Lounge to Revolve Atop 14 Story Building

A roof lounge, its perimeter revolving around a stationary central core, will cap a 14 story office building to be built in Honolulu.

The lounge will be at the equivalent of the 17th floor. A roof-top garden restaurant will be located on the 15th floor level. At the 16th, air conditioning, electrical and other machinery will be enclosed in a penthouse.

The roof lounge will be 60 ft in diameter. The stationary inner core, 30 ft in diameter, will contain a bar, elevator and stairways. The 15 ft rim will have a capacity of about 100 persons and make one revolution an hour. At the perimeter the speed will be about 3 fpm.

Builder is the Hawaiian Land Co. John Graham & Co., Honolulu, is the architect. Completion is expected early in 1959.

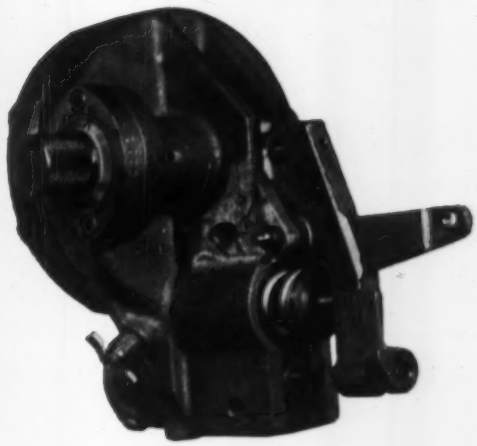
15 Story Office Building Will Be Panama's Tallest

Plans have been announced for construction of a 15 story office building in Panama City. A 2 story, block-long bank building will form the base for the 13 story tower.

Cost of the project is estimated at $3.4 million. The building will provide over 233,000 sq ft of floor space.

Overseas Management Co. of Panama, New York City, is handling options and other details for local investors.

SERVAIR DEMAND CONTROL



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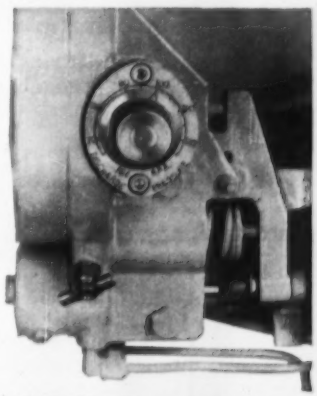

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Modern washing plant salvages 'unsuitable' clay-coated gravel for big air base job

The clay-coated gravel in Porcupine Creek, Montana, had long defied anyone to put it to a useful purpose.

Contractors have tried to shake the dirt loose. They've tried to blow it off conveyor belts with compressed air. They've tried to clean it up by use of washing plants, but without success.

But Northwestern Engineering Co. needed clean concrete aggregates for its big paving job at the Glasgow Air Force Base, 4½ miles away.

This Rapid City, South Dakota contractor held Air Base construction contracts totaling $5,000,000 and decided to make one more try at utilizing Porcupine Creek gravel . . . this time by installing the most efficient washing plant available.

Pick Pioneer Plant

After consulting their PIONEER Distributor and factory engineer, Northwestern installed a PIONEER 405-W Washing and Screening Plant.

The 405-W was selected for several reasons. For one thing, it offered large capacity, and the job called for steady, uninterrupted production of at least 100 cubic yards per hour.

Another factor was efficient use of water, for it was expected that the water level in the nearby creek would fall dangerously low during the dry summer months.

Material Even Dirtier Than Expected

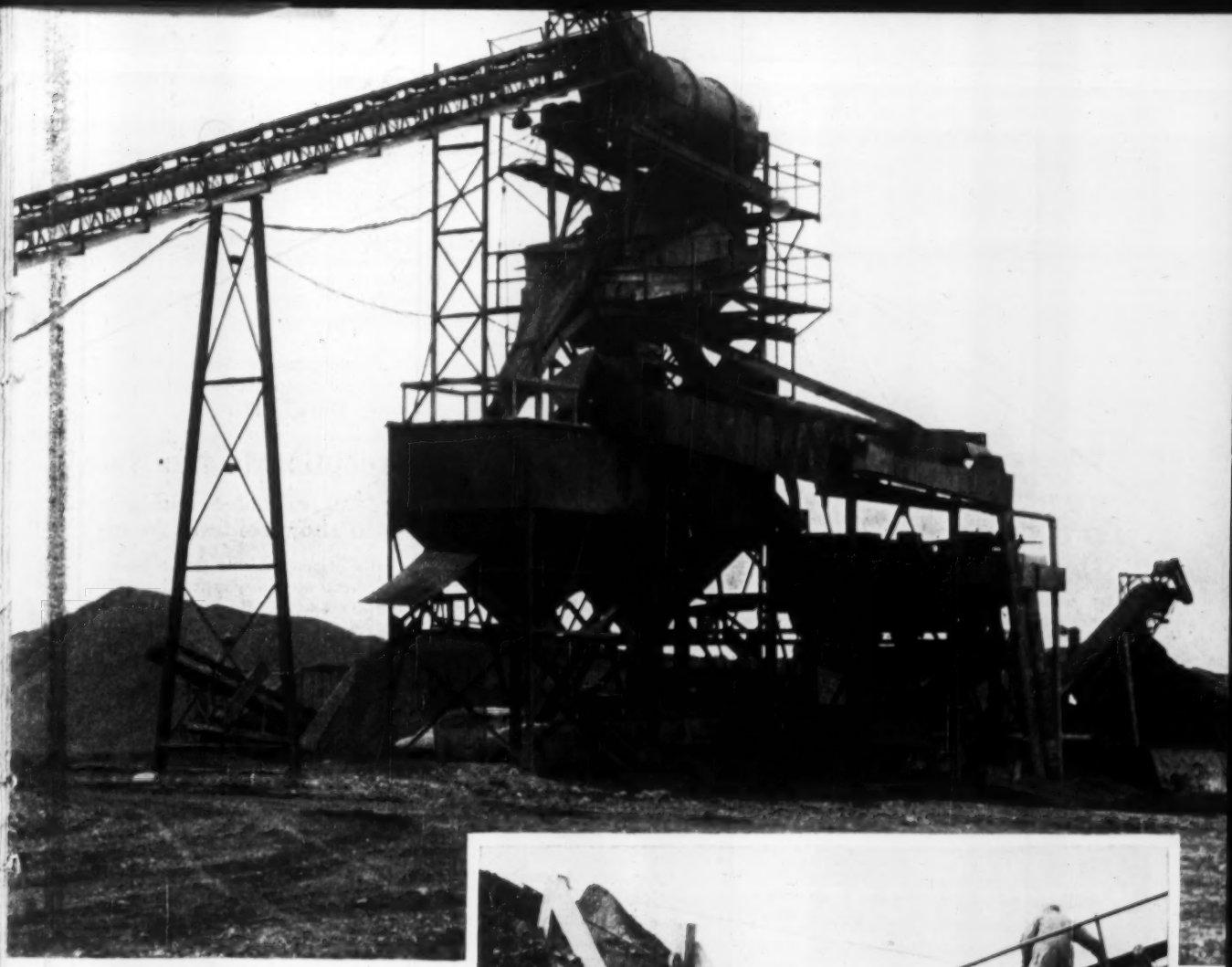
Although it developed that the material was even dirtier than expected, the installation proved a complete success. The 405-W Plant converted the clay-covered glacial gravel to clean, high-grade particles which easily met the Corps of Engineers' rigid specifications for concrete aggregates.

Output also exceeded expectations. The Plant operated all during late spring, summer, and early fall with but minor maintenance expense. Despite the removal of hundreds of tons of clay, the plant averaged as much as *100 cubic yards per hour for every single working day* . . . and according to Project Manager G. W. Keener, was instrumental in enabling Northwestern to complete the paving job on schedule.

How Plant Operates

Pit-run material enters an electrically powered 30″ PIONEER Reciprocating Plate Feeder which deposits it on a 24″ PIONEER Conveyor. This 160′ conveyor elevates it about 50′ above ground level to the top of the Washing Plant.

The raw material then drops into a PIONEER 72″ x 12′ revolving scrubber where the clay is dislodged. Next, it passes to a heavy duty 4′ x 20′



A full time laborer, stationed at end of conveyor, manually intercepts and throws out all the debris he can.

tandem PIONEER Vibrating Screen which scalps off large material.

Oversize Is Used

Some of this oversize is utilized for bituminous paving after being reduced in a PIONEER Portable Crushing Plant operating nearby.

Acceptable size sand and gravel are routed to a scalping tank for further classifying, then to a screw-type de-waterer and onto belt conveyor for stockpiling.

Meanwhile, the intermediate (3/4" to No. 4) aggregates come off the tandem screen and pass to a washer with trash-removing tub end. Here, wood and other coarse debris which had not been previously removed are floated off. Material passes direct to bins for hauling to concrete plant.

Crediting the PIONEER 405-W for its spectacular accomplishment in cleaning up the Porcupine Creek gravel, Project Manager G. W. Keener summed it up quickly:

"When you're faced with a tough problem like we were, there's no substitute for a modern washing plant like the PIONEER *405-W."*

For further information on this or other PIONEER Washing Plants, see your PIONEER Distributor or write Pioneer Engineering, Minneapolis 14, Minnesota.

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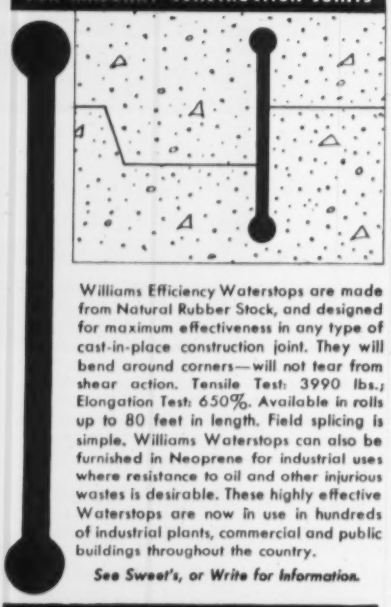

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See Sweet's, or Write for Information.

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Defects in Building

Owner recovers damages despite his acceptance

When a contractor sells a house under construction, state law may impose on the contractor a duty to complete the house in a workmanlike manner. If so, and if defects apear after completion, the owner may recover the cost of remedying the defects even though he has accepted the house and taken occupancy.

Such a situation arose in Ohio for the first time this year. After the buyers had taken possession of the house, the sewerage system proved to be inadequate and defective, and caused the lower part of the house to become flooded. The buyers corrected the defects and recovered from the contractor the cost of the corrective work plus the damage to furniture and carpeting.

The case illustrates the number of different rules that apply to a builder's liability for defective workmanship.

Generally, acceptance and occupancy of a house constitute a waiver of all claims except those based on latent defects. Even an express commitment by a contractor to correct all defects within a reasonable time usually expires with acceptance of the deed, unless a specific exception to the rule is made.

Whether the defects are obvious or latent, a different rule, however, may apply if the builder sells before the house is completed.

On this point, the Ohio court made this observation:

"In the law of England, we find the rule to be that, upon the sale of a house in the course of erection, there is an implied warranty that the house will be finished in a workmanlike manner. Perry v. Sharon Development Co. Ltd., 4 All. E.L.R. (1937) 390.

"In this country, we have found but few cases bearing upon the question. We have found none in this state directly touching it. See cases cited in 'Right of Purchaser in Sale of Defective House,' 4 Western Reserve Law Rev. 357.

"In establishing the law for this case, we adopt the law pronounced in the English case cited supra. We believe it to be salutary and based upon sound legal reasoning.

"We conclude by saying that, in the appeal before us, sufficient credible evidence established the fact that the house, when sold, was still in the course of construction and incomplete; and the bargain implied in law between the sellers and the buyers was the completion of the entire house in such a way that it would be reasonably fit for its intended use, and that the work would be done in a reasonably efficient and workmanlike manner."

(1) Vanderschrier v. Aaron, 140 N.E. 2d 819, Court of Appeals of Ohio, Cuyahoga County, March 7, 1957.

Exception to the Rule

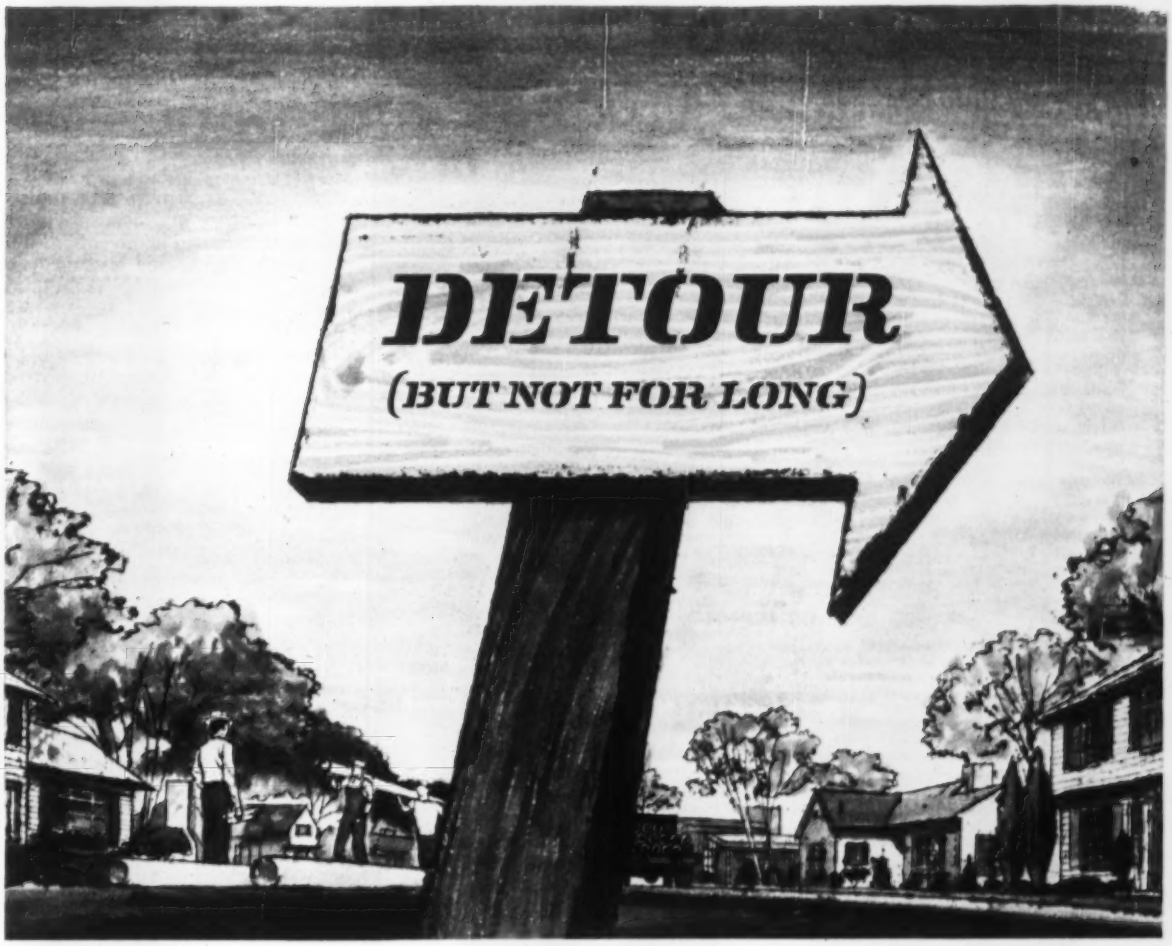
Oral evidence admissible to show contract fraud

It is a general rule that a written contract must be construed according to its terms and that a meaning different from that apparent on its face cannot be established by other evidence such as a collateral verbal agreement. One exception exists in the case of fraud, as, for example, where one of the parties was induced to sign the contract by a fraudulent representation. This exception to the parole evidence rule is discussed in the following New York case, in which the facts were these:

The purchaser of real estate brought an action against the seller to recover damages sustained as a result of fraudulent misrepresentations which induced the purchase of the property. The purchaser claimed that at the time he entered into the contract and at the time he accepted the deed to the property, he seller represented that he had obtained a certificate of occupation and that it was in reliance upon these representations that he entered into the contract and had accepted the deed.

The seller asked the court to dismiss the action, contending that all negotiations leading to the contract and the delivery of the deed were merged into the written contract and that it was improper for the court to admit oral testimony to vary the terms of the written contract. The court denied the application of the seller to dismiss the action, holding that oral testimony was admissible to show that a party was induced to enter into a contract by fraudulent misrepresentations.[1] In this case the seller had not obtained a certificate of occupancy even at the time title to the property was conveyed.

The court stated: "It is true that a written contract, if complete on its face, enjoys the protection of the parole evidence rule and that evidence will be excluded which tends to vary, after or



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Its Ring-Tite Coupling is quickly assembled, provides a tight, long-lasting seal!

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Why? Because lightweight Transite reduces handling costs, speeds work above and below ground. Quickly-assembled with the Ring-Tite Coupling, Transite Pipe ends are joined easily . . . *surely!* And to give you a tight long-lasting joint, rubber sealing rings in the Ring-Tite Coupling are tightly compressed between sleeve and pipe to lock out roots and overcome infiltration problems.

Another advantage of Transite Sewer Pipe is its smooth interior; its coefficient of flow is n=0.010. This results in substantial savings—lets you use smaller diameter Transite Pipe, or permits laying to flatter grades.

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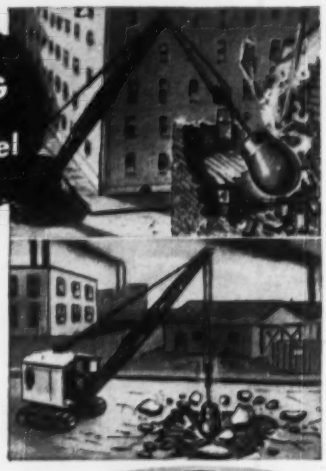

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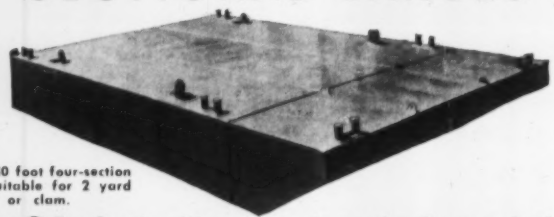

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modify the terms of a written instrument. Mitchell v. Lath, 247 N. Y. 377.

"However, there are exceptions to this rule. Testimony of a collateral agreement may be received, and an incomplete contract may be completed by parol evidence not inconsistent with the written terms. The exceptions must be carefully interpreted lest the effectiveness of the rule be entirely destroyed. Eighmie v. Taylor, 98 N.Y. 288.

"Parol evidence, however, is always admissible to show fraudulent misrepresentations which were made to induce a party to enter into a written contract. Bridger v. Goldsmith, 143 N.Y. 424, 38 N.E. 458; Jackson v. State, 210 App. Div. 115, 205 N.Y.S. 658; Salt Springs Nat. Bank of Syracuse v. Hitchcock, 238 App. Div. 150, 263 N.Y.S. 55.

"In the instant case, plaintiff (buyer) seeks to establish that it was fraudulently induced to enter into the written agreement by virtue of a material misrepresentation of fact upon which it relied to its damage.

"Even where a written contract expressly contains a merger clause, parol evidence is admissible to show that there were oral misrepresentations made, not contained in the contract, made with knowledge of their falsity, with intent to deceive and to the injury of the party to whom they were made. Karscher v. Dewald, 246 App. Div. 21, 284 N.Y.S. 213; Ross v. Fida, 265 App. Div. 586, 40 N.Y.S. 2nd 865.

"In Jackson v. State, 210 App. Div. 115, 205 N.Y.S. 661 above referred to, in giving judgment for the plaintiff (contractor), the Court observed: 'A party to a contract cannot, by misrepresentation of a material fact, induce the other party to the contract to enter into it to his damage, and then protect himself from the legal effect of such misrepresentation by inserting in the contract a clause to the effect that he is not to be held liable for the misrepresentation which induced the other party to enter into the contract. The fact of misrepresentation and fraud cannot be thus easily voided * * *.'"

The court held that whether or not the seller made the representation that he had a certificate of occupancy was a question of fact to be determined at the trial of the action.

Many of the cases referred to by the court involved construction contracts.

(1) Federal Brush Corp. v. A. Zerega's Sons, Inc., 149 N.Y.S. 2d 374.

These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.

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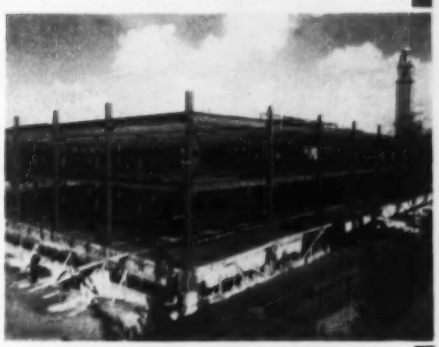

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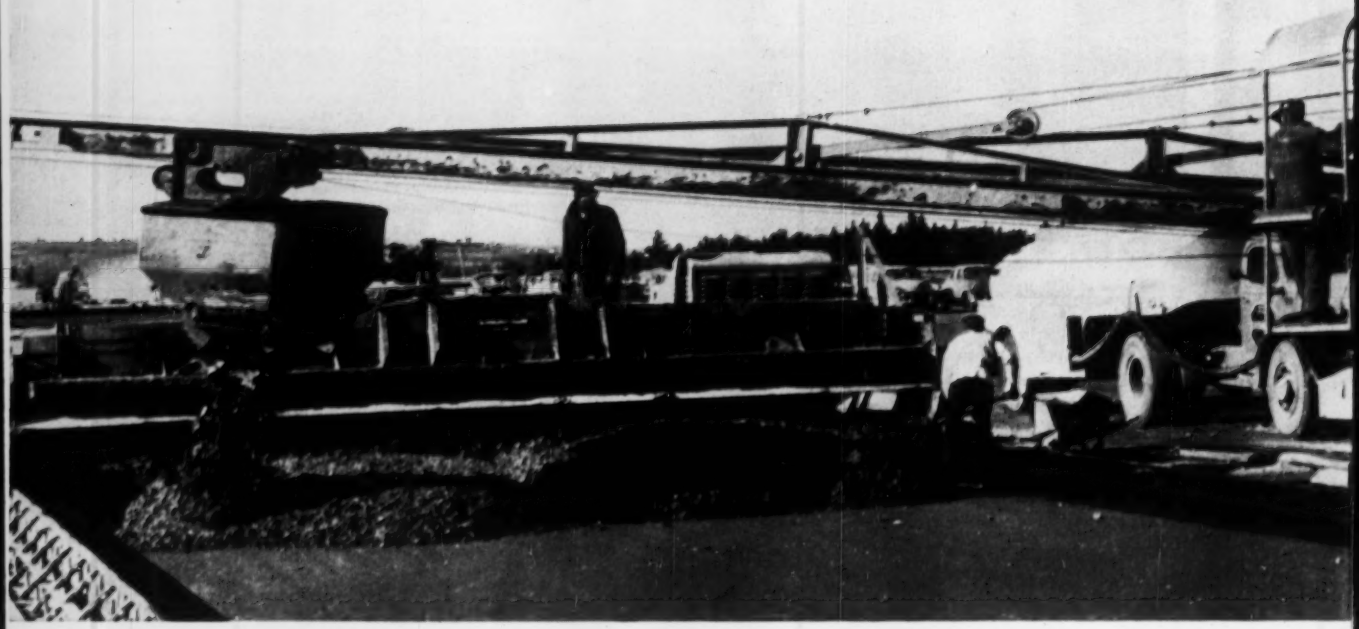
WORKING SIDE BY SIDE, the two Worthington Dual Drum Pavemasters divide the job—the outside unit handling the paving from the center of the strip back and the inside unit paving from the edge to center.



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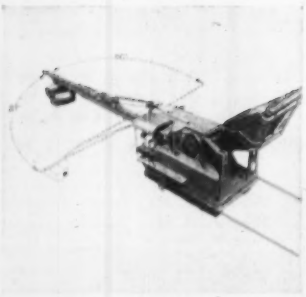
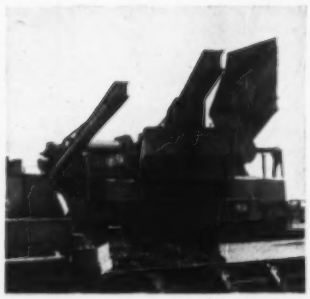
Lightning fast charging. Skip travels from ground (right) to charging position of 56 degrees slope (left) in just 6½ seconds.

High daily pour. With 25 ft. strips and 15 to 21 in. concrete, it averaged 1800 lineal feet (equivalent to 3600 ft. of highway paving).

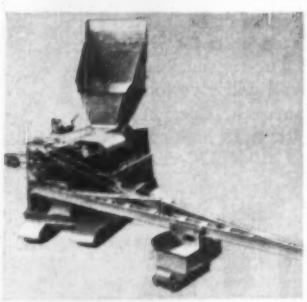


Hydraulically controlled boom on the new Pavemaster with its fast, smooth swing assists operator in spreading concrete.



Hydraulically controlled discharge bucket saves time by eliminating split batches in the drum. Full or part batches are easily discharged.

EVER SEEN" Reports leading New England contractor about 2 new Worthington 34-E Dual Drum Pavemasters



High bucket speed—256 feet per minute both forward and reverse—speeds operation, increases output on the new Pavemaster.

Two new Worthington Dual Drum Pavemasters are setting the pace for a ten-and-one-half million dollar, 13,500 ft. runway at Dow Air Force Base, Bangor, Maine.

Working side by side, the Pavemasters are "the fastest operating pavers I've ever seen," according to general contractor J. R. Cianchette. He explains that due to the pace set by the pavers, with a 6 to 7 second skip operation, a 6 to 8 second hydraulically-controlled transfer operation and a 6 to 8 second hydraulically-controlled discharge chute operation, it was necessary to keep his batch trucks rolling on an accurately-timed schedule.

The tremendous scope of the job emphasizes the necessity for paver speed. Between now and the 1958 completion date of the project the pavers and crew of 150 will place an estimated 255,000 cubic yards of concrete!

In addition to speed, the new Worthington 34-E Dual Drum Pavemaster has many new money-saving features. No less than 17 major improvements have been incorporated into its design and manufacture. For the full story, write for your copy of descriptive bulletin 1270-B1. Address Section R-73, Worthington Corporation, Harrison, N. J.

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LTJG Richard A. Bowers

SeaBee Officer Gets Award For Antarctic Construction

This year's winner of the Morcell Medal for outstanding work in military engineering goes to a young Navy Civil Engineer Corps officer who directed the first construction at the South Pole. LTJG Richard A. Bowers received the award from the Society of American Military Engineers at a dinner in Washington May 20.

On November 20, 1956 LTJG Bowers and an advance party of eight men were landed eight miles from the South Pole. They treked overland to the bottom of the earth using a dog team and a weasel tractor.

Shortly thereafter, 16 more Seabees were flown to the Pole and a small construction camp was built. By December 1 the camp was completed and placed in operation. On the same day the construction of the main base commenced, and by December 20 it was completed.

Consisting of seven buildings, including a powerhouse, garage, science building, latrine, mess hall (which also includes a weather and radio station), an inflation shelter to be used in inflating weather balloons and a series of connecting tunnels, the station is now being used by 18 scientific and naval personnel who are wintering over in the southernmost point of the earth.

These South Pole inhabitants will remain in their isolated camp until February 1958 when they will return to the United States.

LTJG Bowers' citation states that the medal is being presented for "outstanding performance of duty as Construction Officer of the first base ever built at the South Pole." He received a master's degree in civil engineering from Yale University and was employed by Parsons, Brinckerhoff, Hall and MacDonald, New York City, as a structural engineer prior to entering the service in October 1952. Subsequently he transferred from reserve to regular status.

R. E. Royall Retires BPR Research Chief

Robert Edward Royall, information officer of the Bureau of Public Roads, retired May 17 after 40 years of service with the agency.

Since 1944, Mr. Royall, a civil engineering graduate of Washington and Lee University, has been chief of the Division of Research Reports, directing the information, publication, exhibit and motion picture functions of the Bureau; the collection and analysis of highway statistics, and the Bureau's library. In addition, he has had a hand in most of the important reports to Congress, has prepared annual reports, and is the author of numerous encyclopedia articles on roads.

After graduation in 1913, Mr. Royall joined the then Office of Public Roads, and for four years was engaged largely in construction of "object lesson" roads built by the Federal Government to demonstrate good engineering and construction practice. He left the Bureau in 1917 for a year with the newly created South Carolina State Highway Department, and later served for three years as associate professor of civil engineering at Washington and Lee. He returned to the Bureau's service in 1921.

Corps Coordinator Named For Arkansas River Basin

A newly created post for coordinating and centralizing Corps of Engineer work connected with the Arkansas River Basin development program has been filled by Charles A. Long of the Corps Little Rock, Ark., district office. Mr. Long, with the Little Rock District for the last 15 years and chief of its local planning section, will be headquartered at the Southwestern Division office in Dallas.

His new job will be to coordinate planning, engineering studies, field investigations, programming, budgeting and scheduling of construction among the Engineer offices involved, which include the Tulsa, Little Rock and Vicksburg Districts, the Lower Mississippi Valley Division, Office of the Chief of Engineers, plus other federal

(*Men and Jobs continues on page 106*)

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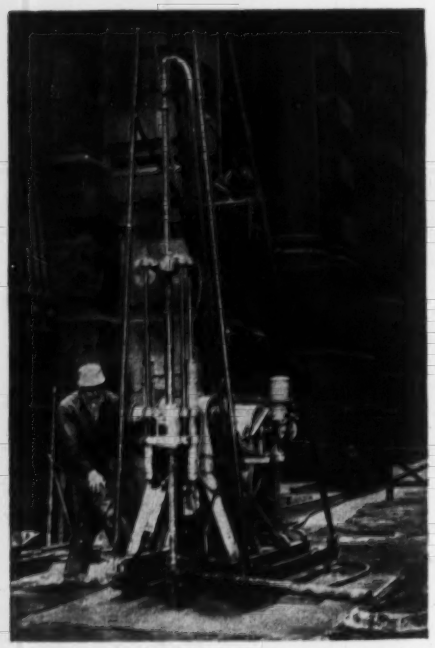

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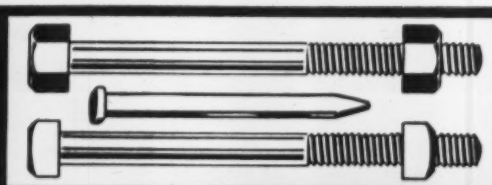

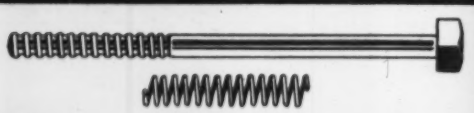

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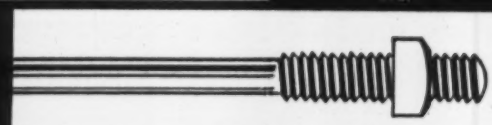

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agencies and various local interests.

The Arkansas River project was authorized by Congress in 1946 to make the river navigable through a series of locks and dams that also will provide hydroelectric power, flood control and recreational facilities.

Careers

Government

Leon E. Andrews, regional highway engineer with the Portland Cement Association, New York City, has retired and is now transportation and traffic engineer with the Civil Defense Planning Agency, Trenton, N. J.

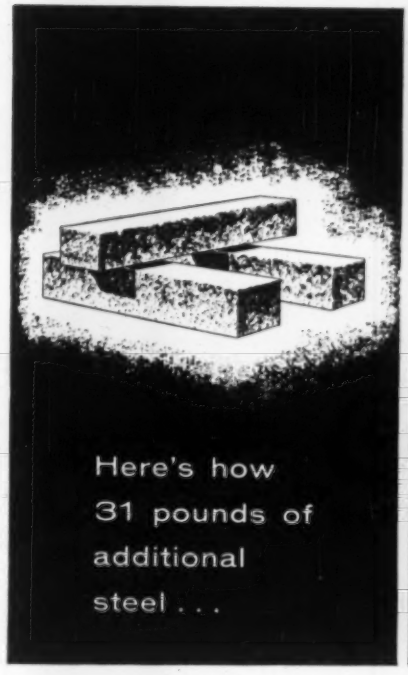
Grover L. Morris, superintendent of the Oklahoma City sewage disposal plants, is named city manager of Norman, Okla., succeeding **Evett N. Allen,** who resigned last year.

Edson J. Davis is reappointed by California's Gov. Goodwin J. Knight to the industrial safety board of the State Department of Industrial Relations. He was once superintendent in charge of dam and powerhouse construction for Pacific Gas & Electric Co.

Elwin T. Howard has been elected president of the Maine Association of Engineers.

Marion A. Dillingham is named vice president of Ambursen Engineering Corp. of New York and Houston, and also is appointed general manager of the Houston office, where he has been principal civil engineer.

The partnership of Greeley and Hansen, engineers of Chicago, now consists of **Samuel A. Greeley, Paul E. Langdon, Thomas N. Niles, Kenneth**



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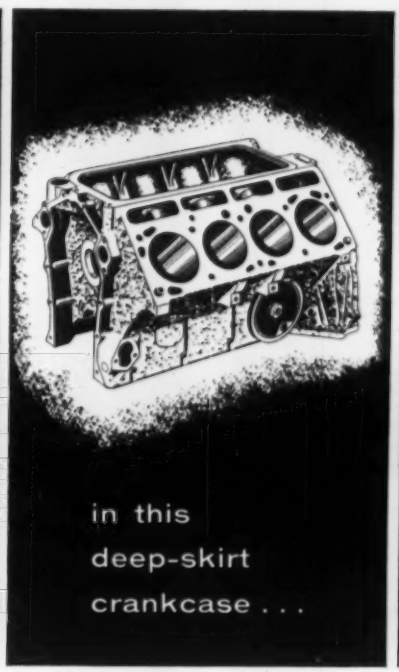

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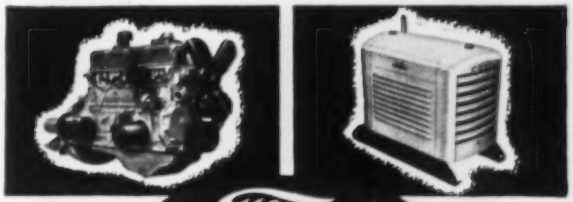

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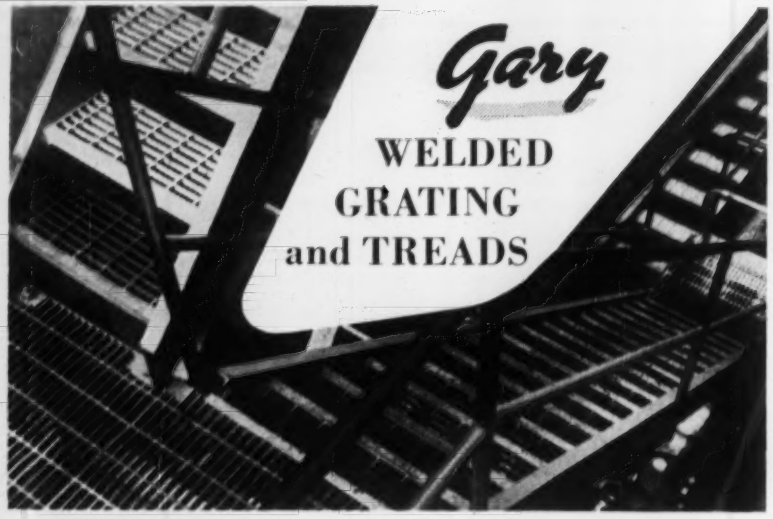

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V. Hill, Samuel M. Clarke, George M. Hite, Donald Newton, Carl W. Reh and M. D. R. Riddell.

Col. Charles B. Schweizer has been assigned to St. Louis, Mo., as district engineer, succeeding **Col. George E. Wright,** who is retiring. Col. Schweizer, now commanding the 36th Engineer Group in Korea, will assume his new command in September.

Lt. Col. R. Duncan Brown, Jr., who has been executive officer of the Omaha District of the Corps of Engineers since Aug., 1955, has been assigned to Panama as director of engineering and construction for the Panama Canal Co.

Clarence C. Burger, on the staff of the Office, Chief of Army Engineers, is transferred to New York City to become special assistant to Col. Clarence Renshaw, North Atlantic Division Engineer, Corps of Engineers.

Col. Charles B. Schweizer, currently assigned to an engineer group in Korea, is to become District Engineer for the Corps of Engineers at St. Louis, Mo., effective in September. He replaces **Col. George E. White, Jr.,** who has retired from active service.

Neill Bohlinger, of Little Rock, has been appointed administrative assistant to Arkansas Highway Director Herbert Eldridge, to work in the right-of-way division of the department.

Robert Carpenter, chief planner for the Detroit Regional Planning Commission, has accepted the post of executive director of the recently organized Tri-County Planning Commission of Summit, Medina and Portage Counties in Ohio.

Robert L. Winemiller has been appointed city engineer for Xenia, Ohio, to replace **C. D. Ackerman,** former city public service director who resigned to become a division engineer for the Ohio Department of Highways.

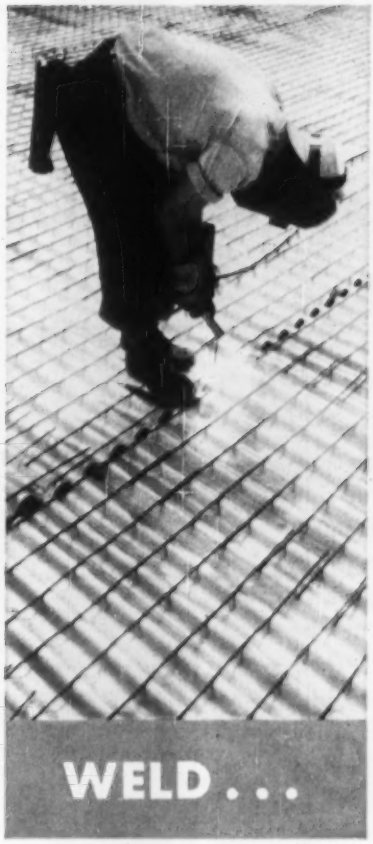
Honors

Thomas J. Skinker, retired St. Louis City Water Commissioner, and **Edward B. Fay,** who was the engineer in charge of construction on both the Douglas MacArthur and Chain of Rocks bridges across the Mississippi River in St. Louis, are awarded honorary membership in the Engineers Club of St. Louis.

Howard L. King is named Metropolitan Civil Engineer of the Year by the Metropolitan Section of the American Society of Civil Engineers. Designated as being "outstanding in the field of tunnel construction" and for having done "a work of wide public interest", Mr. King is chief engineer of Mason & Hanger-Silas Mason Co., Inc., contractor on the third tube of the Lincoln Tunnel.

PLACE . . .

Cofar units weigh only 2 psf and cover up to 35 sq. ft. Units arrive at job site pre-cut to fit framing. No sorting. No fitting. Placing of units follows closely behind structural steel erection.



WELD . . .

Welded in place, Cofar provides a safe, solid work platform for trades. Concrete crews move in days sooner. Cofar welding gives designers flexibility to meet local codes for lateral forces.

CONCRETE

In monolithic slabs, Cofar offers composite action to resist concentrated loads and horizontal forces. For steel or concrete framing, Cofar underside may be painted for finished ceiling.

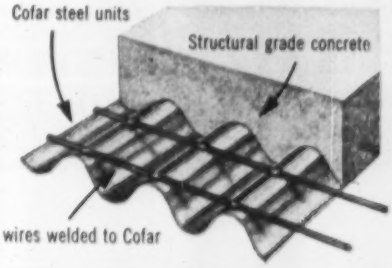
Cofar® combines concrete form and re-steel in one product. Saves time! Saves money!

Cofar units are deep-corrugated, high-strength galvanized steel sheets with "T" wires welded across the tops of corrugations. Cofar provides:

(1) tight concrete form
(2) safe work platform
(3) complete positive reinforcement

"T" wires furnish necessary temperature reinforcing and anchor concrete to steel.

Cofar units lap tightly, prevent concrete leakage and eliminate clean-up time below and are hot-dip galvanized for building-life permanence. When concrete sets, a fire-safe, high-strength reinforced concrete slab results. For more information about time, work and money-saving Cofar construction, contact Granco home or district office. ATTN: Dept. E-78.



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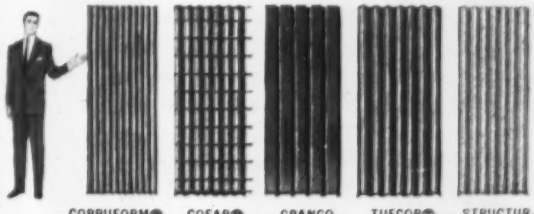

Costs of city work seem too high?

LOOK HOW SANGAMO CONSTRUCTION CO. CUTS THEM

This well-known 30-year-old Springfield (Illinois) firm, a year ago, had a problem common to most city-area contractors. Moving costs and traffic slow-downs were taking much of the profit out of their municipal work. Small, extra, one-day or weekend jobs, which *could* have built income, often couldn't be handled because, like many contractors, their equipment was either too small or too big. Sangamo, however, found a solution. They bought Michigan Tractor Shovels. Today, their $3,000,000 annual volume is *largely* in city work and *three* of their busiest, most profitable machines are Michigans.

Drive, turn non-stop on narrowest city streets

All these units can be on their way to any kind of loader job in minutes. "These rigs go anywhere," says Clyde Turner, one of Sangamo's job superintendents. "They can run three or four blocks, through auto and truck traffic, in a minute or so. Twenty-seven miles takes only an hour. Rubber tires don't tear up asphalt or oil-mat pavement. They can even go up on a sidewalk without breaking it or the curbing. And our Model 75A's (which are 6' 8" wide and 16' 10" long) can turn around non-stop on the narrowest city streets."

Does job of bigger machines setting 12 inch sewer pipe

Often, one of the Michigans is assigned to a major job where maneuverability is a vital factor in speeding completion. Above picture shows typical task of this type —laying eight miles of 8, 10, and 12-inch sewer pipe for the city of Decatur (Illinois). Daily—almost hourly—this Model 75A shuttled between *three* crews. Tasks included pushing spoil away from trencher . . . back-filling . . . transporting and laying pipe. At times, it set manholes weighing 1200 to 1500 lbs per ring section. Biggest advantages proved to be speed (a typical half-mile trip took 75 seconds) . . . rugged construction (in a summer of work, no time was lost from the job for repairs) . . . planetary axles (which eliminated all axle breakage despite rugged lifting demands)

Carries 1800 lb water main section

Bigger loads have been no problem for the Michigans, either. Above, the second of Sangamo's 80 hp Model 75A's carries an 1,800 lb, 18 ft section of 20 inch water main. This unit *can* lift 8,000 lbs while standing still . . . can carry 4,000 lbs at 4 mph.

Clears, loads 1,000 yards of rubble in 1½ days

Sangamo's third Michigan Tractor Shovel, a 95 hp, 2 yard Model 125A, also handles assignments where speed is important. Here it's on a historical job in Springfield—clearing the wreckage of Illinois' first governor's mansion to make way for a parking lot. Entire 1,000 cubic yards of rubble and dirt was piled and loaded out in 1½ days. Sangamo Construction bought this machine, their first Michigan Tractor Shovel, after having it demonstrated (to quote Company President, Bill Kewley) "on the toughest tractor shovel work we could find—digging up wet rocky ground to improve drainage around a Springfield sewage treatment plant. Later," Kewley continues, "it proved so handy and so dependable, all our crews wanted one. So, in 5 months, we bought our second Michigan, and 3 months later, our third."

Full buckets are the trademark of all Sangamo's Michigans. Here the Model 125A, bin-storing hot mix material, carries *more* than its rated 2 yard capacity. Unexcelled breakout force, low-level tipback, and low-level-carry result in the delivery of big loads every time, the operator says.

Stockpiling gravel is another job for the busy Model 125A. While at this city-located yard, rig sometimes loads trucks and railroad cars, feeds the crusher, does cleanup. Its standard 2 yard bucket, incidentally, is interchangeable with either 1⅜ or 2½ yard buckets.

The model 75A's standard 1¼ yard bucket interchanges with ¾ and 2 yard sizes. Both models can also be equipped with crane hooks, fork lifts, backfiller blades, scarifiers and root rakes. For small jobs you can get a Michigan Model 12B with 6, 10, 16, 20, or 27 cubic *foot* capacity . . . for big jobs you can get a Michigan Model 175A with 1⅞, 2¼, 2¾ (standard), 3¼ or 5 cubic *yard* capacity. For help in determining which of these four models, or which of their 35 different buckets and attachments, *best fits your needs*, ask one of our job study engineers to study your layout. Feel free to call or write us any time for this service. It's free, of course and realistic . . . and will put you under no obligation whatsoever.

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Construction Machinery Division
2401 Pipestone Road
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In Canada: Canadian Clark, Ltd.
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Don't play games...

get Le Roi's new shock-absorbing rock drills!

You're a winner every time, too, with Le Roi's new shock-absorbing sinkers. They take away an amazing 55% of the punishing kick normally transmitted from the hammer to the operator—yet never lose an ounce of rock-shattering impact. This makes drilling so easy, we don't know how your operators can keep from playing tic-tac-toe.

See these new easy-handling long-life rock drills at your local Le Roi distributor. He's got the new Model H10, H111, and H12 sinkers in stock right now . . . available for fast delivery. Or write Le Roi Division, Westinghouse Air Brake Company, Milwaukee 1, Wisconsin.

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PORTABLE AND TRACTAIR® AIR COMPRESSORS • STATIONARY AIR COMPRESSORS • AIR TOOLS

Close Bidding Features Nevada Highway

The $592,603 contract for this 24.613 mile section of bituminous surfaced secondary highway is only 0.06% below the second low bid but 35% below the high ninth bid. It extends from the Nye-Lincoln County line to 25 miles southeast on State Road 25. The State of Nevada Department of Highways, Carson City, awarded contract to Dodge Construction, Inc., Fallon, Nev. H. D. Mills is state highway engineer and Homer Anrig is resident engineer in Hiko, Nev.

Class B-1 roadmix bituminous surface, 2.5 in. thick, is placed on the 26 ft roadbed with shoulders. On the two 12 ft traffic lanes it is placed on a variable 0 in. to 9 in. gravel base and a 6 in. gravel surface course with seal coat.

The contractor has to move the material about 70 miles from the nearest railhead.

Minimum wage rates are $2.65 for skilled labor, $2.55 for semi-skilled and $2.45 for unskilled labor.

Bidders include:

1C	Dodge Const. Inc., Fallon, Nev	$592,603
2	Silver State Const. Co., Fallon, Nev	592,975
9	Peter Kiewit Sons' Co., Arcadia, Calif	911,780

Bids: 3-14-57 Items	Unit	Quantity	Unit Prices 1C	 2
Signs	ls	job	$1,500.00	$500.00
Excavation, roadway	cy	103,795	0.65	0.85
drainage	cy	90	1.00	0.80
channel	cy	319,868	0.25	0.30
Ditches, V-type	sta	94	6.00	10.00
Overhaul	sta yd	182,056	0.02	0.02
	yd mile	3,822	0.20	0.20
Excavation, structure	cy	230	3.00	2.50
Backfill	cy	2,320	1.50	1.50
Water	Mgal	22,312	1.85	0.75
water equipment, furnish	ls	job	24,000	30,000
Power roller	hr	260	7.50	6.00
Tamping or pneumatic-tired roller	fthr	17,765	0.65	0.50
Gravel base, type 1	t	38,384	0.70	0.80
surface	t	128,618	0.90	0.85
Asphalt, liqu, type MC-2	t	197	45.00	40.00
type SC-3 or SC-4	t	2,825	40.00	38.00
Sand blotter	t	200	3.00	1.00
Roadmix	mi	24.61	750.00	750.00
Roadmix, intersections	sy	1,158	0.30	0.20
CMP, dipped, 24"	lf	1,648	6.75	6.00
36"	lf	292	12.00	11.00
48"	lf	74	16.00	15.00
CMP arch, dipped, 43x27"	lf	2,304	16.00	15.00
58x36"	lf	382	22.50	22.00
72x44"	lf	116	33.50	35.00
Riprap, grout, hand-laid	cy	54	30.00	30.00
Culvert markers & guide posts	ea	573	6.00	6.00
Reference monuments	ea	106	10.00	10.00
Right of Way markers	ea	106	7.50	6.00
Miscellaneous work	force account		1,500	15.00

Time to complete: 150 working days
Liquidated damages: $100 per day

Connecticut Water Main Bids Show Wide Spread

Seven bids on these 5,610 lin ft of cast iron water main in Newington, Conn., range from $34,324 to $102,993. Contractor Johnson Bros., Auburn, Mass., underbid the engineer's estimate by 13%, the second low bid by 27% and the high bid by 67%. The Water Bureau of The Metropolitan District, Hartford, Conn., furnishes the pipe and gate valves. Warren N. Gentner is chief engineer and deputy manager of the District.

Sections of this line with 5,400 lin ft of 16 in pipe will be installed at depths to 10 ft, compared to a normal cover of approximately 4 ft.

Bidders include:

1C	Johnson Bros., Auburn, Mass	$34,324
2	American Const. Co., Inc., Hartford, Conn	47,127
7	Celco Const. Corp., Dorchester, Mass	102,993
EE	The Water Bureau of The Metropolitan District, Hartford, Conn	39,565

Bids: 3-14-57 Items	Unit	Quantity	Unit Prices 1C	 2
CIP, 16" 12" & 10"	i lf	5,480	$5.50	$7.80
8", 6", & 4"	i lf	150	7.00	7.80
Exc, earth, below grade & outside limits of trench	cf	250	7.00	6.00
Gate vlv, 12", & pits, build	i ea	2	300.00	500.00
8", 6" & 4" in gate boxes	i ea	12	10.00	25.00
Air valves	i ea	3	50.00	15.00
Concrete masonry	cy	10	30.00	35.00
Steel, reinforcing	lb	120	0.20	0.20
Timber ordered left in place	Mfbm	1	300.00	150.00

To be completed: 9-1-57
Liquidated damages: $50 per day

i install

Maryland Sanitary Sewer Jacked Under Siding

L. M. Bautz Construction Co., Baltimore, Md., will build the 4,706 lin ft Gwynns Falls sanitary interceptor sewer in Towson, Md. It is for the Baltimore County Metropolitan District, John B. Funk, Director of Public Works. This $108,333 contract is 10% below the second low bid and 13% below the engineer's estimate.

The price of $20.17 per lin ft of 36 in. reinforced concrete culvert pipe with rubber joints includes excavation and refill. Pipe sleeve, 66 in. in diameter, is jacked under a 40 ft railroad siding at a price of $193.97 per lin ft.

Bidders include:

1C	L. M. Bautz Constr. Co., Inc., Baltimore, Md	$108,333
2	Ligon & Ligon, Inc., Baltimore, Md	120,042
6	Marocco Constr. Co., Inc., Baltimore, Md	148,438
EE	Baltimore County Bureau of Engineering	125,000

Bids: 3-7-57 Items	Unit	Quantity	Unit Prices 1C	 2
RCP, culv, 36", rubber jts, w/appurt incl unclassif excav, refill & fittings, f&i	lf	4,706	$20.17	$22.90
MH incl waterproof, to 12'	vf	120	30.00	35.00
More than 12'	vf	5	40.00	45.00
MH frame & covers, f&p	ea	13	45.00	50.00
Build storm drains, conc chan, earth chan, cut off wall, riprap trans sect, conc cl B encasmt of sew & exc	ls	job	1,270	3,000
Sleeve, RCP, 66", jack under RR siding, conc bkfl	lf	40	193.97	105.00

Time to complete: 135 calendar days
Liquidated damages: $50.00 per day

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For only 70¢ per day

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CONSTRUCTION DAILY—NEWSLETTER

—24-hour advance news on big bid dates, top jobs, planning ahead, trends, costs and prices, appropriations, major events.

These name owners, engineers, architects, give job descriptions, dates, locations, estimated costs.

CONSTRUCTION DAILY—REPORTS

—on PROPOSED WORK (averaging over $100 million a day)—a long lead on BIDS ASKED, LOW BIDDERS AND CONTRACTS AWARDED (averaging over $70 million a day).

These name contractors and owners, show type of work and contract price.

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Materials and Labor Prices

Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, May 23; Next, June 20
- Clay Products, Lime, Plaster, Paint, Roofing: Last, May 30; Next, June 27
- Wage Rates, Building Board, Lath, Insulation: Last, May 30; Next, June 27*
- Cement, Aggregate, Ready-Mixed Concrete, Asphalt: Last, June 6; Next, July 4

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. struc-tural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.00	$4.85	$5.075	$10.85	.....	$101.50	$120.00	$6.35	$8.775	$6.025	.....
Chicago Area	5.00	4.85	5.075	10.85	$5.90	101.50	120.00	6.35	8.775	6.025	.....
Pittsburgh Area	5.00	4.85	5.075	10.85	5.90	101.50	120.00	6.35	8.775	6.025	$13.10
Buffalo Area	5.00	4.85	5.075	10.85	5.90	101.50	120.00	6.35	8.775	6.025	13.10
Cleveland	.....	.....	5.075	10.85	5.90	.....	.....	.....	.....	.....	13.10
Youngstown Area	.....	.....	5.075	.....	.....	.....	.....	.....	8.775	.....	.....
Geneva	5.00	4.85	5.175	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	5.70	.....	5.775	.....	5.90	.....	.....	.....	8.775	.....	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	6.35	8.775	6.025	.....

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	EXPANDED METAL LATH Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	$8.44	8.90	$8.08r	$52.00	$57.00	
Baltimore	8.67	8.10j	.....	42.00	46.50	
Birmingham	8.20l	8.07t	8.07t	66.25p	71.00p	
Boston	9.10a	8.15	8.15	47.50	51.00	
Chicago	8.35	8.56gu	8.56gu	52.00‡	63.00‡	
Cincinnati	8.80ak	8.43rs	.....	43.50mn	48.00mn	
Cleveland	8.57	8.54e	.....	44.50‡	49.00‡	
Dallas	9.95	8.50	8.50	57.00	62.00	
Denver	9.80	8.45e	.....	57.00n	63.00n	
Detroit	8.74	8.13	.....	56.00	63.00	
Kansas City	8.87a	7.65	.....	48.00	52.50	
Los Angeles	9.00fd	7.35	.....	58.50	64.50	
Minneapolis	8.64d	8.91b	8.91b	41.50	46.00	
Montreal	8.25-9006C/8.30-8.70A	7.75/9.95t	7.75/9.95t	65.70A	70.20A	
New Orleans	.....	7.70abs	.....	45.50	50.00	
New York	8.91s	7.80dy	7.80dy	50.50n	57.00nn	
Philadelphia	8.04	7.14	.....	42.50‡	47.00‡	
Pittsburgh	7.48	6.57	.....	42.50	47.00	
St. Louis	8.67s	8.05c	8.05c	60.00l	62.00l	
San Francisco	9.15	9.10j	.....	47.50	53.00	
Seattle	9.35	8.60e	.....	62.00nr	68.00nr	
Toronto	8.75*	7.60	7.60	56.00nq	59.00nq	

Quantity extras, per cwt: under 100#, +$2; 100-399#, +$1.50; 400-999#, +$1.30; 1000-1999#, +$1.00; 2000-4999#, +$.80; 5000-9999#, +$.60; 10,000-19,999#, +$.40; 20,000-29,999#, +$.30; 30,000# and up, +$.20.

EXTRAS, per cwt—♦Quantity: under 1,000#, +$1.80; 1000-1999#, +$1.50; 2000-4999#, +$1.25; 5000-9999#, +30¢; +40¢; 10,000-19,999#, +60¢; 20,000-29,999#, +30¢; 30,000-39,999#, +10¢; 40,000# & up, none. ♦Size: #2 +$2.50; #3 +$1.40; #4 +$1.00; #5 +70¢; #6, #7, #8, #9, #10, #11 +50¢. ♦Bending: heavy, +90¢; light, +$2.20 except in New York City and surrounding metropolitan area where bending must be done on the job. ♦Engineering (details and placing from designs by others): over 500 tons, +45¢; 200-499 tons, +50¢ but not over $4500; 75-199 tons, +65¢ but not over $2000; 20-74 tons, +75¢ but not over $875; 5-19 tons, +85¢ but not over $300; under 5 tons, +$1.00 but not over $8, min. charge $25 for drawing. Design only: +60¢.

4 × 16 in., No. 8 & 10 wires—Joliet, Ill., Donora, Pa., Monessen, Pa. $3.78

4 × 12 in., No. 8 & 12 wires—Joliet, Ill., Donora, Pa., Monessen, Pa. $3.50

6 × 6 in., No. 6 & 6 wires—Joliet, Ill., Donora, Pa., Monessen, Pa. $3.05

*† Delivered *a 2000-9999#, *b 10,000-18,999#, fob city *c 20 tons or over *d 10,000-19,999# *e Intermediate struct'l *f Incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j Intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more. *q 3 lb *r 2% off for cash *s 2,000-4,999# *t add 15¢ del. *u add 6.25¢ switch *v Incl 15¢ del. *x add 5¢ switch *y add 35¢ del. *z add 10¢ del. *A American made. *C Canadian made. ** Aver. of Canad ian & American.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEXq	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 12" Sew Cl. 1	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 PER 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	123.7	$1.64	$2.68	$.58	$1.00	$4.40	$14.50	$277.00s		$1.55m	$4.40m
Baltimore	133.3	1.64	2.46	.665	1.28	5.08s	12.71	187.80	$289.20	1.01	2.75m
Birmingham	119.0	1.64	2.68	.46	.86	3.70sz	10.37sz	260.00‡	440.00‡	1.25m	2.75
Boston	136.2	1.66	2.46	812qrt	1.566qrt	6.525qrt	.....	215.40r	330.60r	1.56mq	3.47mq
Chicago	134.1	1.64	2.46	.93m	1.78m	7.82m	21.16m	220.00m	330.00m	1.30	4.00
Cincinnati	128.7	1.66	2.55	.665t	1.2825t	4.905t	12.505	240.00	370.00	.85m	3.25m
Cleveland	134.9	1.66	2.55	.595s	1.1475s	4.725t	12.4025t	155.40m	240.60m	.85m	3.50m
Dallas	131.0	1.66	2.80	.439	.799	4.006	9.176	.....	.....	.63	1.80
Denver	141.4	1.73	2.80	.47n	.84n	3.73n	.....	.....	.....	.75m	2.75m
Detroit	135.3	1.66	2.55	.90	1.70	6.80	18.50	240.00m	370.00m	.95	3.82
Kansas City	131.7	1.66	2.55	.61	1.105	5.518	14.95	275.00	485.00	90	2.90
Los Angeles	141.8	1.73	2.46	.74l	1.61l	6.42l	15.36l	360.00l	530.00l	1.12	3.32f
Minneapolis	143.1	1.68	2.68	.86mo	1.55mo	6.70mo	.....	.....	.....	1.76h	4.74h
Montreal	.....	.....	.....	1.07u	1.90u	6.80u	12.50u	288.00	545.00	1.17h	3.11j
New Orleans	126.5	1.64	2.68	.535	.983	5.10z	.....	370.00pz	580.00 g	.85	2.90
New York	131.7	1.66	2.46	1.02	1.94	7.56	19.48	.....	.....	1.50	3.00
Philadelphia	131.0	1.64	2.46	.65	1.25	4.95s	12.65s	300.00‡	350.00‡	1.60h	3.95h
Pittsburgh	136.1	1.66	2.46	.468m	.864m	3.86m	9.78m	152.00	244.00	1.05h	2.50h
St. Louis	130.1	1.64	2.55	.59	1.08	4.45	10.80	180.00l	380.00l	1.45il	3.10il
San Francisco	141.8	1.73	2.46	.78d	1.69d	6.72d	16.36d	320.00l	560.00l	1.05m	3.30m
Seattle	142.2	1.73	2.46	.67b	1.33b	6.84	.....	220.00c		1.10k	3.25k
Toronto	.....	.....	.....	.76	1.425	6.00	.....	157.00	280.00	1.02	3.57

*† Delivered. *a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 119.0; Burlington, N. J., 127.8. *b Extra strength ASTM C 200-44T *c 4-in., $130. *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76-56 *h reinforced, ASTM C 76-41 *i reinforced, ASTM C 76-37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13-40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60-1941 specs. used *v standard strength *w ss; add 20% for d.s *x Extra Strength.

***WROUGHT STEEL PIPE**

(Full standard weight)

Discount from list; see footnote

Mill	2½ & 3 in. Butt Weld Black %	2½ & 3 in. Butt Weld Galv. %	2½ & 3 in. Lap Weld Black %	2½ & 3 in. Lap Weld Galv. %	3½ to 6 in. Lap Weld Black %	3½ to 6 in. Lap Weld Galv. %	b Continuous
Lorain, Ohio	20 7.5	3 50	3 50	3 50	10 25a	+4 00a	+7 50a
Aliquippa, Pa	20 7.5	7 00	3 50	7 00	4 25a	+14 50	+5 75d
Sparrows Pt., Md.	18 7.5	0 50	2 50	0 50	9 25ab	+9 50a	+21.50ab
Benwood, W. Va	20 7.5	3 50	3 50	3 50	13 50a	+0 75a	+7 50a
Youngstown, O	20 7.5	3 50	3 50	7 00	10 25	+7 50a	+5 75d
Indiana Harbor, Ind.	19 7.5	2 50	2 50	2 50	9 25ab	+9 50a	+21.50ab
Sharon, Pa.	20 7.5	2 50	2 50	2 50	10 25a	+7 50a	
Wheatland, Pa	20 7.5	3 50	3 50	7 00	6 50d	+5 75d	
Etna, Pa	20 7.5	7 00	3 50	7 00	+2 75ab	+21.50ab	
Fontana, Calif.	7 7.5	+10 50	7 50	+10 50			

+Threaded and coupled. a 3½ to 4 in. weld. 5 and 6 in. d 6 in.

*** WROUGHT STEEL PIPE:** Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.(*based on approx. $200 per net ton): Butt Weld ⅛ in., 51½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 78½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 65.54, galv., + 95.77; 1¼ in. black, + 65.54, galv. + 95.23, 1½ in. black, + 61.79 galv. + 91.22; Lap Weld—2½ in. to 3 in. black + 67.95 galv. + 95 77; 4½ in. to 6 in. black + 64.74 galv. + 90.68 Add freight rates plus 3% transportation tax to get destination price.

Complete design Versatility with standard components

windows

Specify any size or type your design requires. Glass can be clear or patterned, and single or double glazed. Sash can be either fixed or operating in awning, projected, pivoted and hopper types or Robertson's new V-Window (hinged for inside cleaning).

verticals

The verticals as well as all trim can be fabricated from a variety of materials to provide contrast with the spandrels. The vertical members can be fabricated in a number of cross-sections to suit your design requirement.

spandrels

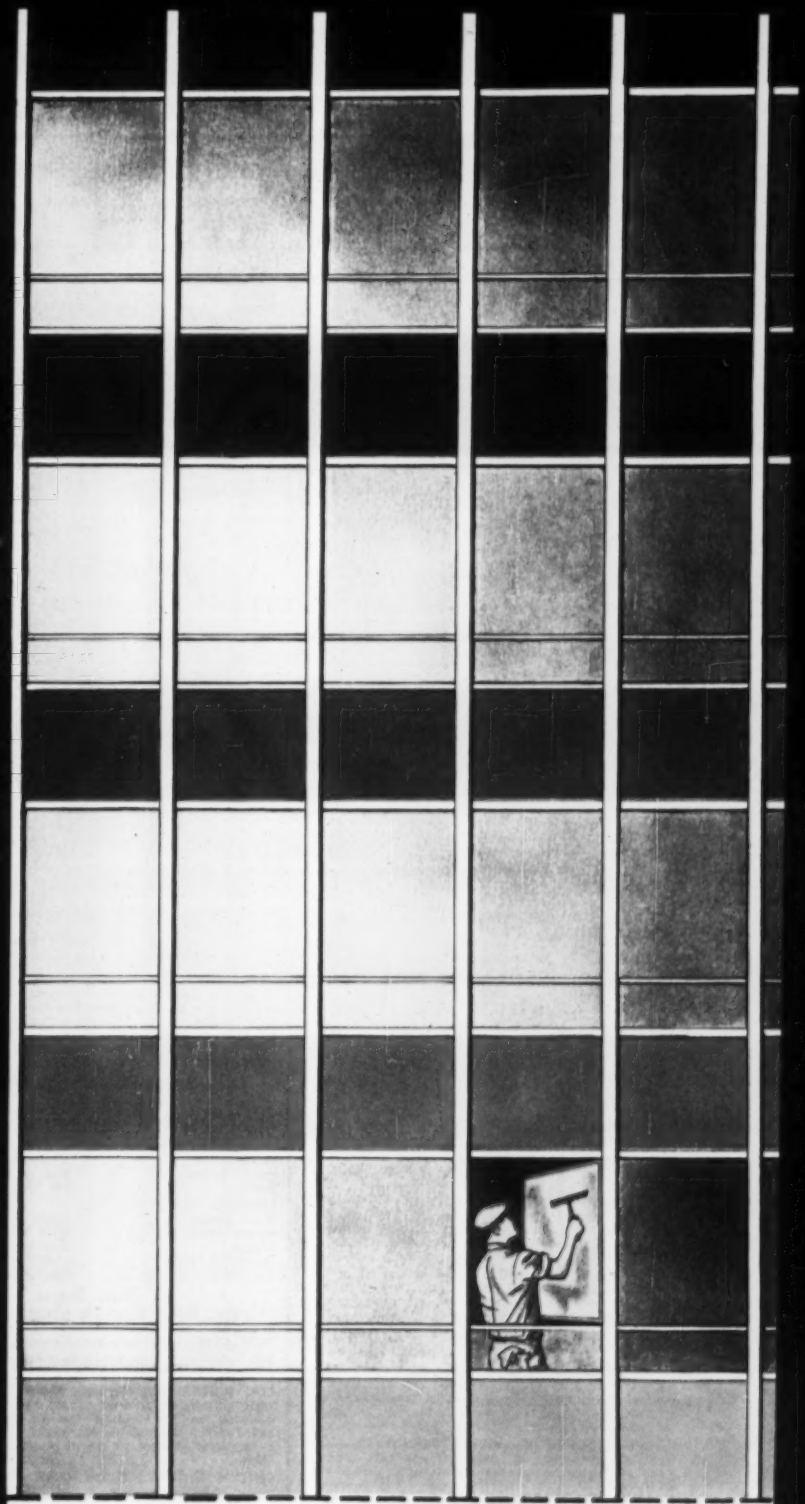
Here again, an infinite number of design and size selections are possible. The V-Panels can have a wide variety of surface patterns and be fabricated in aluminum, bronze, stainless steel, Galbestos or vitreous enameled aluminum or steel. Versatile Wall offers complete freedom of design.

H. H. ROBERTSON CO.

Pioneers in puttyless glazing since 1915

2400 Farmers Bank Bldg.
Pittsburgh, Pa.

In England — Robertson Thain Ltd., Ellesmere Port, Cheshire
In Canada — Robertson-Irwin Ltd., Hamilton, Ontario



Robertson Versatile Wall

...a curtain wall as individual as your signature

Please send additional information

NAME TITLE

COMPANY

ADDRESS CITY

Bids Asked—Low Bidders—Contracts Awarded—First Section—

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J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **Massachusetts**—WILDLIFE REFUGE PAVING—BA 6/17—Regional Director U. S. Fish & Wildlife Service, 59 Temple Pl., Boston, Zone 11, b. conc. paving at Parker River National Wildlife refuge, Newburyport. Inv. No. FW-5-2296.

† **Maine, Massachusetts and Connecticut**—PLATFORMS—BA On Or About 6/18—U. S. Eng., 150 Causeway St. Boston 14, Mass., concrete platforms for AN-TPS-ID radars at various New England Defense Areas, incl., (a) Loring Site, off Willard School Rd. at existing Command Post "A" in vicinity of Loring Air Force Base, Limestone, Me.; (b) Fort Strong Site at northern tip of Long Island, Mass. (c) Swansea Site at control area of Nike Site PR 29 off Sharpes Lot Rd., Swansea, Mass. (d) Cromwell Site, at control area of Nike Site HA-48 off State Route 72 near State Route 3, Cromwell Conn. (e) East Windsor Site, control area of Nike Site HA-08 off Scantie Rd., near U. S. Route 5 East Windsor, Conn. (f) West Haven Site at control area of Nike Site BR-15 off Boston Post Rd. near Indian River Rd., Orange, Conn., ENG-19-016-57-222.

† **Massachusetts**—TACTICAL FACILITIES—BA 6/21—U. S. Eng., 150 Causeway St., Boston, rehabilitation of tactical facilities, Belmont, Newton, Lynn and Fort Dawes (Deer Island) ENG-19-016-57-237, $50,000-$75,000. Plans deposit $10. extended date. CD 5/28.

BUILDINGS—BA

▲ **Mass., Brookline**—HOSPITAL—BA 6/18—Allerton Hospital, 68 Allerton St., Proj. Mass 80, hospital, High and Chestnut Sts., $1,100,000. Plans deposit $100. William Nelson Jacobs Assocs., Inc., 316 Stuart St., Boston, archt. CD 5/24.

▲ **Mass., North Andover**—PLANT—BA 6/18—Western Electric Co., Inc., 195 Broadway, New York, N. Y., (selected list bidders), plant exten. Approx. $7,000,000. Extended date. Charles T. Main, Inc., 80 Federal St., Boston, engr. CD 5/24.

Mass., Russell—SCHOOL—BA 6/27—Town, School Bldg. Com., Russell Village School, elementary school, $345,-000. Plans deposit $75. CD 9/21.

HEAVY CONSTRUCTION—SLC

Mass., East Boston—STORAGE AND PUMPING FACILITIES—Shell Oil Co., 441 Stuart St., Boston, soon lets contract, 60,000 gal. storage facility and pumping facilities, Northeast Airline Hangar Area, Logan Airport, Approx. $75,000.

BUILDINGS—SLC

▲ **Mass., Brighton**—THEOLOGY HOUSE addn.—St. John's Seminary, c/o Chancery Office, 1 Lake St., soon lets contract Theology house addn. $1,000,000. Joseph Gregory McGann, 123 Fairfield St., Fairhaven, archt. CD 4/18.

▲ **Mass., Foxboro**—FACTORY, etc.—The Foxboro Co., Neponset Ave., soon lets contract factory and office addn., Neponset Ave., $1,800,000. Korslund LeNormand & Quann, 506 Washington St., Norwood ,archts. CD 4/27/56.

Mass., Lawrence—PLANT OFFICE—Atlantic Enterprises, Inc., 301 Essex St., soon lets contract, 113 x 5 ft. plant office bldg., Canal St., incl. air cond. parking space, heating, plumbing and electric work, $95,000. Herman H. Petzold, 301 Essex St., archt. CD 5/22.

R. I., Providence—MANUFACTURING—Kenney Mfg. Co., 609 Wellington Ave., Cranston, soon lets contract manufacturing bldg., Wellington Ave. $100,000. Henry W. Markoff, 271 George M. Cohan Blvd., archt.

HEAVY CONSTRUCTION—LB & CA

MAINE—State Hy. Comn. Bids opened 5/22,
Me.—**Warren Bros. Roads Co.**, Fairfield, Me. CA $75,820, bit. 3.638 mi. F.A. Proj. No. F-014-1 (7), Raymond;
Me.—**Lane Constr. Corp.**, 965 E. Main St., Meriden, Conn., CA $106,065, b. conc. 4.681 mi. F.A. Proj. No. F-025-2 (9), Palmyra-Newport.

† **Herbert E. Callahan, Inc.**, 41 North Main St., Auburn, Me., LB $596,850, est. $600,000, A.U.W. bldg., Naval Air Station, NBy 92649, Spec. 42972, BRUNSWICK, ME., U. S. A., 1st Naval Dist., 495 Summer St., Boston, Mass. Bids May 28. CD 5/23.

Wyman & Simpson, Inc., 283 Water St., Augusta, Me., LB $161,769, est. $165,000, ferry terminal, Lermond Cove, ROCKLAND, ME. City, Port Dist., Ervin Curtis, pres., Rockland, Me. Bids May 28. CD 5/1.

James A. Munroe & Son, Inc., 156 N.W. Washington St., North Attleboro, Mass., CA $111,225, intercepting sewers, JAFFREY, N. H. Town Bd. Selectmen Town Hall, Jaffrey, N. H. Bids May 23. CD 5/15.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
M. **DeMatteo Constr. Corp.**, 200 Hancock St., Quincy, Mass., CA $6,108,543, FA No. 1-352(2) Contr. N-Section of J. F. Fitzgerald Expressway, Dover to Union Park St., Boston. Bids May 7. CD 5/9 under LB.

† **Perini Corp. Marine Div.**, 62 Condor St., East Boston, Mass., LB $130,000, est. $122,500, maintenance dredging, Annisquam River, Gloucester, CIVENG-19-016-57-92 MASSACHUSETTS. U. S. Eng., 150 Causeway St., Boston, Mass. Bids May 28. CD 5/14.

Chemenzi Constr. Co., Inc., 50 Rantoul Ct., Beverly, Mass., CA $63,202, water pumping station, Magnolia Ave., GLOUCESTER, MASS. City, Dir. Pub. Wks., Poplar St., Gloucester, Mass. Bids May 21. CD 5/16.

Joseph Perry, Inc., 117 Kempton St., New Bedford, Mass. LB $96,611, est. $106,393, two stone mounds and capping sea walls, Point of Pines, REVERE, MASS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. Bids May 28. CD 5/24.

▲ **RHODE ISLAND**—State R. I. & Prov. Plants, Div. Purchases, State House, Providence,
Campanella & Cardi Const. Co., 780 Jefferson Blvd., Warwick, R. I., CA $3,343,194, est. $3,500,000. 4-lane divided hy., Grace St. and East Ave. to west abutment part Bridge-East and north to Broadway. Bid 975 Contr. 5753 FA Proj. I-01 (1), Pawtucket. Bids May 15. CD 5/20, under LB.

CONNECTICUT—State Hy. Comn., State Office Bldg., Hartford,
Frouge Constr. Co., Inc., 141 North Ave., Bridgeport, Conn., LB $752,145 (2 bidders) Proj. 56-42, 2-span welded plate girder bridge over Miamus River and c. conc. paving 1,250 lin. ft. Route U.S. 1, U-29 (17), Cos Cob. Bids May 27. CD 5/8.
State P. Wks. Dpt., 165 Capitol Ave., Hartford, Conn., received no bids May 22, Proj. BI-CC-75A, vertical descending baggage conveyor, Terminal Bldg., Bradley Field, WINDSOR LOCKS, CONN. CD 5/17.

BUILDINGS—LB & CA

Cote Constr. Co., 20 St. John Ave., Van Buren, Me., LB $417,254, est. $400,000, ARMORY and COMMUNITY BLDG., No. 17-018-57-3, CARIBOU, ME. State, Officer of Property & Disbursing, Camp Keyes, Augusta, Me. Bids May 29. CD 5/9.

Caron Constr. Co., Inc., 161 Baker St., Manchester, N. H. CA $350,000. Parochial SCHOOL, HUDSON, N. H. St. John The Evangelist Church, 27 Library St., Hudson, N. H. Andrew C. Isaak, 20 Hanover St., Manchester, N. H., archt.

P. J. O'Leary Bldg. Co., Inc., 3 Pleasant St., Dedham, Mass., CA Approx. $450,000, 16 room parochial SCHOOL, High St., DEDHAM, MASS. St. Mary's R. C. Parish, Msgr. Mark C. Driscoll, pastor, High St., Dedham, Mass. Maginnis & Walsh & Kennedy, 126 Newbury St., Boston, Mass., archts. CD 6/11/54.

Aberthaw Constr. Co., 60 State St., Boston, Mass., CA $110,000, 107x129 ft. bldg. addn., Saxonville, FRAMINGHAM, MASS. Roxbury Carpet Co., Saxonville Div., Framingham, Mass.

Thomas O'Connor & Co., Inc., 238 Main St., Cambridge, Mass. CA Approx. $500,000, HOSPITAL addn., alterations, 35 Binney St., BOSTON, MASS. Children's Cancer Research Foundation, 35 Binney St., Boston, Mass. CD 4/4.

Aberthaw Constr. Co., 60 State St., Boston, Mass., CA $100,000, MANUFACTURING PLANT, Brussels St., WORCESTER, MASS. Roxbury Carpet Co., Whitall Div., 1 Brussels St., Worcester, Mass.

† **Dist. P. Wks. Office, First Naval Dist.**, 495 Summer St., Boston, Mass., cancelled bids to have been opened May 21, recreational facilities, Naval Base, NBy 5060, Spec. 5060/57, NEWPORT, R. I. CD 4/29.

Gilbane Bldg. Co., 90 Calverly St., Providence, R. I., CA $473,000. PSYCHOLOGY BLDG., Waterman St., PROVIDENCE, R. I. Brown University, Barnaby C. Keeney, pres., Prospect St., Providence, R. I. CD 1/14.

Mauro Constr. Co., 62 Bassett St., New Haven, Conn., CA $604,000. Proj. MR-62, moderate rental HOUSING, DERBY, CONN. Derby Housing Auth., Town Hall, Derby, Conn. Bids Apr. 23, awarded May 22. CL 5/8, under LB.

▲ **Herman W. Bieler**, Chestnut Hill Rd., Norwalk, Conn., CA $1,933,750. 65 HOUSES "Village Farm," South Ave., NEW CANAAN, CONN. Yates & Kavenewsky, Inc., 157 Main St., New Canaan, Conn. Awarded May 27.

▲ **Consumer Homes, Inc.**, 167 Water St., New Haven, Conn., Owner Builds, $1,584,000. 132 HOUSES, Clintonville Rd., NORTH HAVEN, CONN.

DeLuca Constr. Co., 27 Crescent St., Glenbrook, Conn., CA $150,000. 2 story, 3,700 sq. ft. PAPER PILOT PLANT, SPRINGDALE, CONN. Springdale Laboratories, 835 Hope St., Springdale, Conn. Sherwood, Mills & Smith, 65 Broad St., Stamford, Conn., archt. Awarded May 27.

▲ **Joseph Rugo, Inc.**, 581 Boylston St., Boston, Mass.; LB $1,969,369 (6 bidders) Proj. BI-D-200A and B, SOCIAL SCIENCE and HUMANITIES BLDG., University of Connecticut, STORRS, CONN. State P. Wks. Dpt., 165 Capitol Ave., Hartford, Conn. CD 3/14.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

Pa., Phila.—RESURFACING—BA 6/17—Dpt. Procurement, City Hall Annex, Bid 6580, resurf. Taxiway 3-4 and portion of Runway 6-24, with bit. material and appurtenant work, North Philadelphia Airport, Contr. A-141-NE. CD 3/9/56.

D. C., Wash.—BA 6/18—D. C. Govt., Dpt. Hys., 499 Pa. Ave. N. W., 2 bridges Military Rd. over Joyce Rd. N. W. and Joyce Rd. over Luzon Stream, Fed. Aid Proj. U49 (4). Plans deposit $20.

▲ **N. J., Newark**—SKATING RINK—BA 6/18—Essex County Park Comn., 115 Clifton Ave., indoor ice skating rink in South Mountain Reservation, Northfield Ave., West Orange, $1,000,000, Plans deposit $25, E. Nelson Edwards, 112 S. 16 St., Phila., Pa., archt. CD 5/3/56.

† **New York**—AAA GUN SITES—BA On Or About 6/19—U. S. Eng., 111 E. 16 St., New York, Zone 3, rehabilitation of existing AAA Gun Sites, Niagara Defense Area, ENG-30-075-57-526 $50,000-$100,-000. CD 8/23.

† **D. C., Wash.**—PARKING LOT—BA 6/19—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, rehabilitation of Parking Lot No. 11, Naval Security Station, NBy 12916.

† **New York**—AAA GUN SITES—BA 6/19—U. S. Eng., 111 E. 16 St., New York, Zone 3, rehabilitation of existing AAA Gun Sites, N. Y. Defense Area, ENG-30-075-57-525, $100,000-$150,000. CD 6/3.

N. Y., Wynantskill—BA 6/19—Town of North Greenbush, sponsors of the Wynantskill Sewer District, Wynantskill Firehouse, Main Ave. (Route 66) and Church St., in Wynantskill, installing complete sanitary sewerage sys. for Hamlets of Eastmor, Whiteview and Wynantskill; Contr. 1 outfall sewer to the City of Troy, incl. furnishing, laying about 5,800 ft. 15 in. clay pipe with manholes, etc. $60,000; Contr. 2, incl. installing approx. 11,600 ft. 6 in. laterals, 48,700 ft. 8 in., 6,500 ft. 10 in. and 2,100 ft. 12 in. pipe, as well as pipe specials, manholes, inverted siphon, other appurtenances, $355,000. Plans deposit $30 each. Harrison & Mero, 10 Brunswick Rd., Troy, consult engrs.; adv. ENR 6/13.

† **N. Y., Jackson Heights**—PAVEMENT REPAIRS—BA 6/20—The Port of New York Auth., 111 Eighth Ave N. Y., Zone 11, Contract O & M-441 pavement re-

(Continued on page 118)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

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RAIL POWER

PLYMOUTH® LOCOMOTIVES

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PLYMOUTH LOCOMOTIVES *in Progressive Industry throughout the world*

(Continued from page 116)

pairs and seal coating, La Guardia Airport. Plans deposit $10. CD 1/14.

† **N. Y., Andes**—FILLER FACILITIES—BA On Or About 6/26—U. S. Eng., 111 E. 16 St., New York, Zone 3, unmanned gap filler facilities, Serial No. ENG 30-075-365. $75,000-$125,000. CD 12/28.

† **D. C., Wash.**—AAA SITES, IMPRVS—BA 6/27—U. S. Eng., First & Douglas Sts., N. W., Wash. 25, D. C., modification and addns. to control and launching areas, Special AAA Sites, ENG-49-080-57-94 (92) CD 6/3.

Pa., Phila.—BA 7/16—Dpt. Procurement, City Hall, Bid 2821, Contr. 710-W, pre-treatment bldg. and equipment, Torresdale Filter Plant, State Rd. and Pennypack St. Plans deposit $40. CD 11/24/44.

BUILDINGS—BA

† **Md., Bethseda**—REACTOR—BA 6/19—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., reactor bldg. annex to Bldg. 24, National Naval Medical Center, NBy 11435. CD 8/7.

† **Md., Annapolis**—SHIP MODEL TOWING TANK—BA 6/20—Officer in Charge of Constr., U. S. Naval Academy, Annapolis, ship model towing tank exten., Naval Academy, NBy 2577, Spec. 2577/57: CD 11/17/47.

Md., Wheaton—SCHOOL—BA 6/20—Xaverian Brothers, 10000 New Hampshire Ave., Silver Spring, boy's high schoool to be known as Our Lady of Good Counsel High School, Georgia and Arcola Aves. Plans deposit $50. Johnson & Boutin, 1417 22nd St. N. W., Wash. D. C., archt. CD 10/8.

† **N. Y., Amherst**—TRAINING CENTER—BA 6/20—U. S. Eng., 111 E. 16 St., New York, Zone 3, Army Reserve Training Center, $600,000-$800,000. Plans deposit $25. CD 5/28.

▲ **N. Y., Scarsdale**—SCHOOL—BA 6/20—Bd. Educ., Scarsdale, Heathcote School and Edgewood and Green Acres Schools. Plans deposit $25 for each Perkins & Will, 55 Church St., White Plains, archts. CD 10/19/51.

† **Pa., Lancaster**—STORAGE—BA 6/24—Dpt. Army & Air Force, National Guard Bureau, U. S. Property & Fiscal Office for Pennsylvania, Annville Rd. No. 2, Pa., interior alterations and addn. to present Storage Bldg. (A) for proposed service center. Plans deposit $5.

N. J., Eatontown—MOTOR VEHICLE CENTER—BA 6/25—State House Comn., Div. Motor Vehicles, State House, Trenton, concrete steel motor vehicle center bldg. on 13-acre tract, adjoining Old Orchard Golf Club, $624,000. CD 4/15.

† **Md., Camp Detrick**—WAREHOUSE, etc.—BA On Or About 6/26—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., communications center, ENG-49-080-57-86-(84), warehouse, ENG-49-080-57-88-(86), roads, walks, parking and fence, ENG-49-080-57-89-(87). Plans deposit $25. CD 11/14/51.

† **N. Y., Tonawanda**—TRAINING CENTER—BA On Or About 6/26—U. S. Eng., 111 E. 16 St., New York, Zone 3, Army Reserve Training Center, ENG-30-075-57-403. $400,000-$500,000.

† **N. Y., New York**—BUILDINGS—BA 7/30—Veterans Admin., Munitions Bldg., Wash. 25, D. C., altering Buildings 1 and 21, Veterans Administration Hospital. Hart, Jerman & Assoc., 250 E. 43 St., New York, Zone 17, archts. CD 3/13/56.

Pa., Collegeville—SALES AND SERVICE—Bids Asked—Kaiser-Miller Ford Agency, Trappe, sales and service bldg. $93,000. Harry G. Mohn, Mohnton, archt.

Pa., Pottstown—PLANT—Bids Asked—Dana Corp., Pottstown, 1 story, 46x160 ft., structural steel, brick plant, $120,000. H. L. Becker, company engr.

HEAVY CONSTRUCTION—LB & CA

▲† **Tecon Corp.**, 1201 Main St., Dallas, Tex., LB $2,893,552, dredging 1000 Islands for St. Lawrence Seaway from Alexandria Bay to Oak Point, NEW YORK. U. S. Eng., foot of Bridge St., Buffalo 7, N. Y. Bids May 15. CD 3/20.

▲ **T & T Contg. Corp.**, 4814 Glenwood Rd., Brooklyn 3, N. Y., LB $1,549,520 (7 bidders) storm water sewer, appurtenances in Springfield Blvd.; sanitary sewer, appurtenances in Springfield Blvd.; reconstr. sanitary sewer, appurtenances in Springfield Blvd.; grading, curbing, sidewalks, b. conc. paving Springfield Blvd., 4th Ward NEW YORK. Queens Boro, Queens Borough Hall, 120-55 Queens Blvd., Kew Gardens 24, N. Y. Bids May 29.

▲ **Peter W. Kero, Inc.**, 216 Washington Ave., Carlstadt, N. J., CA $1,018,033, Park Ave. Viaduct between Hoboken and Weehawken, JERSEY CITY, N. J. Bd. Freeholders Hudson Co., Court House, Jersey City, N. J. Harry J. Thourot, Court House, Jersey City, N. J., engr. Bids Mar. 14, awarded May 24. CD 3/22.

Spiniello & Nesto Constr. Co., 249 Wallace St., Orange, N. J., CA $66,500, est. $75,000 16-in. water line in Passaic River (this was emergency appropriation and was awarded immediately without public bidding), KEARNY, N. J. Town, Town Hall, Kearny, N. J. Gerhardt T. Joa, Town Hall, Kearny, N. J., engr.

State Paving & Contg. Co., 1924 Arch St., Phila., Pa., LB $262,984 (3 bidders) bridge approach, paving and curbs, PALMYRA, N. J. Burlington County Bridge Comn., Palmyra, N. J. D. B. Steinman, 117 Liberty St., New York, N. Y., engr.

C. H. Schwertner & Son, Inc., 1220 Hamilton St., Phila., Pa., CA $183,690, wellhouses and electrical work, VINELAND, N. J., City, City Hall, Vineland, N. J. CD 7/9.

▲† **Araco Co.**, 922 W Cortland St., Phila., Pa., and **Kemberly Constr. Co.**, Flourtown, Pa., CA $1,073,499, ADC storage facilities, McGuire Air Force Base, WRIGHTSTOWN, N. J. Dpt. Army, 2635 Abbottsford Rd., Phila., Pa. CD 4/30, under LB.

PENNSYLVANIA—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Diehl & Lick, Route 209, Weissport, Pa., CA $655,959, 18,751 ft. crushed aggreg. base with bit. T.R. 4, Bethelham & Lower Nazareth Twps., Northampton Co. Bids Apr. 26, awarded May 29. CD 5/1, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

Pa.—**Hempt Brothers, Inc.**, R.D. 1, Camp Hill, Pa., CA $5,502,320. 29,960 ft. c. conc. pavement variable in width, divided hy. 3 plate girder and 5 I-beam bridges, T.R. 22-322, Derry Twp., Lewistown Boro, Mifflin Co.;

Pa.—**Sanctis Constr., Inc.**, 410 Marlow St., Pittsburgh 20, Pa., CA $632,369. 6,301 ft. divided hy. of rein.-con., variable in width, 1 deck I-beam bridge Bridgewater Boro, T.R. 51, Beaver Co. Bids May 10, awarded May 29. CD 5/15, under LB.

Cayuga Landscaping Co., Northeast Ave. and Red Lion Rd., Phila., Pa., LB $99,480, general contract athletic fields and grading, HAVERTOWN, PA. Haverford Twp. School Dist., Havertown, Pa. Bids May 23. CD 5/17.

Glasgow, Inc., Glenside, Pa., CA $984,512. Bid No. 3040, grading streets, South Phila. Food Distribution Center, Area Stage I, PHILA, PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids May 16. CD 5/3.

Kelly Paving & Constr. Co., 1347 E. High St., Phila., Pa., LB $117,248, Bid 2810, water mains, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids May 21. CD 5/16.

McClain Constr. Co., 200 S. 13 St., Phila., Pa., CA $100,000 1 story, 5,000 sq. ft., brick, block, TRANSMITTER BLDG., PHILA., PA. National Broadcasting Co., 1617 Chestnut St., Phila., Pa. Clarence Dustin, 1606 Walnut St., Phila., Pa., archt.

Barney Zinick, 99 Argyle Rd., Brooklyn, N. Y., CA $178,145. Bid 2786, Southwest Treatment Works alterations, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Samuel S. Baxter, water comr. CD 2/4/44.

Joseph R. Farrell, Inc., 4424 Market St., Phila., Pa., CA $155,000. stadium addn., VILLANOVA, PA. Villanova University, Villanova, Pa. CD 12/16/53, under Commercial Buildings.

P. Flanigan & Sons, 2504 Loch Raven Rd., Baltimore 18, Md., LB $82,192 (6 bidders) Contr. 1453-SA, sheet asph. paving, BALTIMORE, MD., City, Bureau Hys., 301 Municipal Bldg., Baltimore 2, Md. Bids May 22. CD 5/17.

Alquist [illegible], 4804 Hollywood Rd., College Park, Md., LB $[illegible]377 (8 bidders), water main, Brach Ave. and [illegible] streets, Contr. 1825-W, Clinton, Prince George's Co., HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Halilton St., Hyattsville, Md. Bids May 27. CD 5/23.

Morrow Bros., Inc., 2315 N. Charles St., Baltimore 18, Md., CA $160,000, concrete, steel CRITICAL FACILITIES BLDG., Nuclear Div., MIDDLE RIVER, MD. The Glenn L. Martin Co., Middle River, Md.

Ligon & Ligon, 3310 Ridgewood St., Baltimore 15, Md., LB $202,895 (11 bidders), Contr. 565-S, Gwynns Falls Interceptor Sewer, near Baltimore, TOWSON.

(Continued on page 121)

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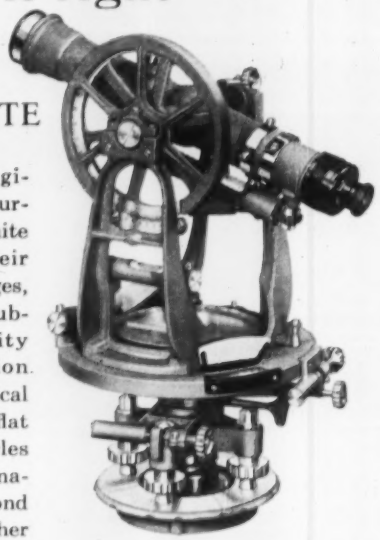

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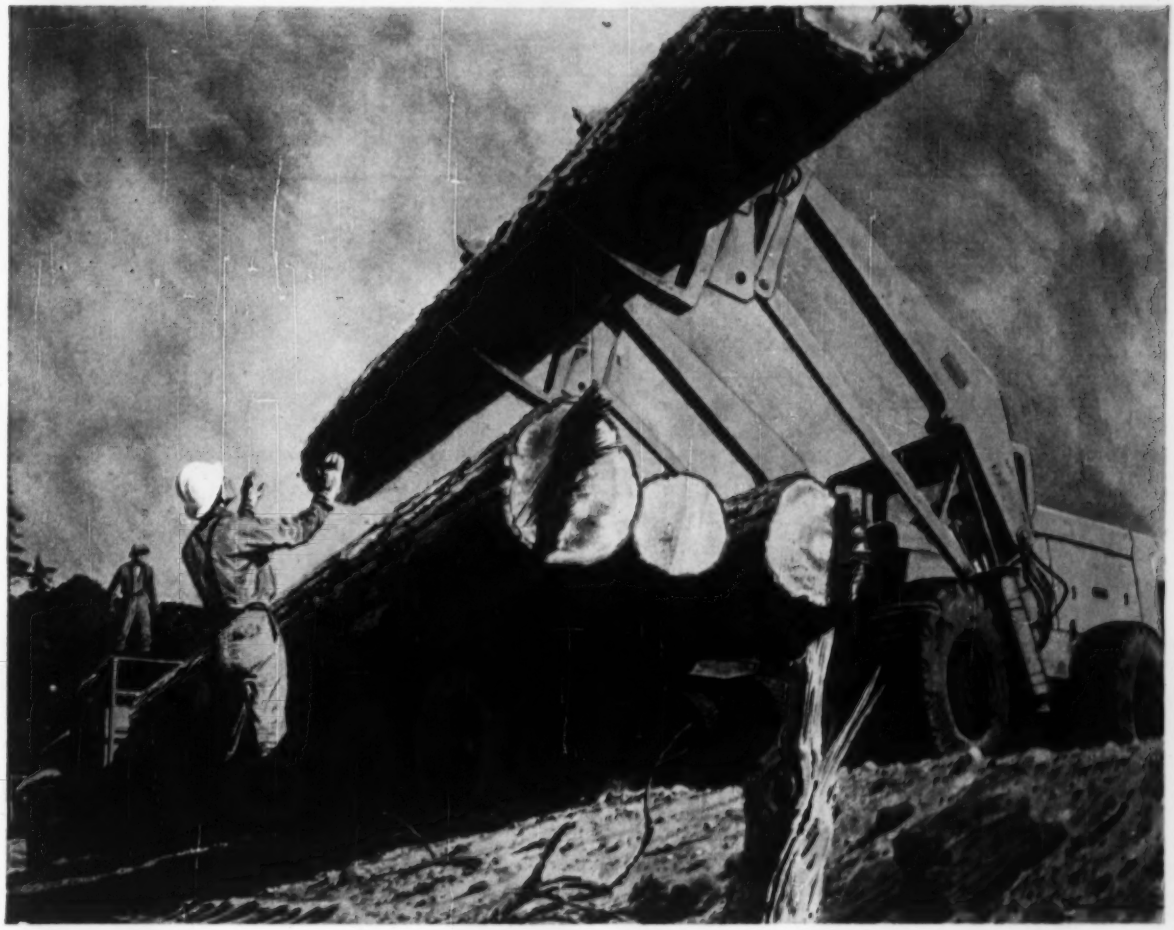

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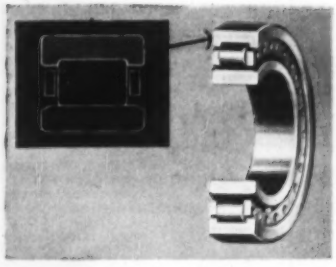

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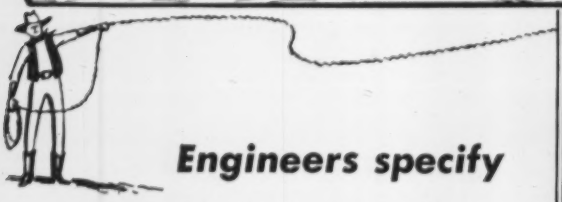

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The Hidalgo County job called for 240,000 lineal feet of pipe, requiring 40,000 or more joints. *Fast-working* joints were necessary to keep construction costs down. *Water-tight* joints were a "must," to prevent leakage of vital irrigation water. *Non-deteriorating* joints were essential, to remove the danger of failures which might interrupt service and thereby damage crops.

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✻ **PROJECT:** Irrigation line—Hidalgo County Water Control and Improvement District No. 16, Mission, Texas.

ENGINEERS: Charles L. Melden, Civil Engineer, Edinburg, Texas, and A. Tamm, Consulting Engineer, Harlingen, Texas.

CONTRACTOR: Heldenfels Bros., Corpus Christi, Texas, and F. M. Reising, Edinburg, Texas, Sub-Contractor.

PIPE: T & G Concrete, sizes 12" to 30", supplied by Longhorn Concrete Pipe Company, Edinburg, Texas.

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(Continued from page 118)

MD. County Executive, County Office Bldg., Towson, Md. Bids May 23. CD 5/13, under Md., Baltimore.

Vatalo Bros., New Castle, Del., LB $121,336, sanitary sewer, Contract 1957-10, WILMINGTON, DEL. New Castle Co., Levy Court, Public Bldg., Wilmington, Del. John I. Cahalan, c/o owner, ch. engr. CD 5/20.

DELAWARE—State Hy. Dpt., Hy. Dpt. Administration Bldg., Dover.

cancelled bids to have been opened Apr. 29, Contr. I-1 (1), Bridge No. 1 0.106 mi. at Farnhurst Interchange, Feb. Aid Proj. I-01 (3), New Castle Co. CD 4/17. Will re-advertise.

DELAWARE—State Hy. Dpt., Dover. Bids opened 5/22.

Del.—**Burger Constr. Co.**, Dover, Del., LB $122,275, grading on imprv. of 12 dirt roads in eastern and northeastern section of Kent Co.;

Del.—**Alexander Constr. Co.**, Chester, Pa., LB $176,130, surf. about 12 dirt roads, Kent Co., CD 5/21.

BUILDINGS—LB & CA

▲ **Vincent J. Smith, Inc.**, Cleveland and Endicott Ave., Johnson City, N. Y., CA $1,388,000, est. $2,300,000. HIGH SCHOOL BLDG. at Attica, and small ELEMENTARY SCHOOL in Varysburg, ATTICA, N. Y. Attica Central School, Attica, N. Y. Awarded May 24.

▲ **Peter Reiss Constr. Co., Inc.**, Franklin Ave., Brooklyn, N. Y., LB $1,249,900 (2 bidders) general contract LAUNDRY and BATH FACILITIES and SHOE and TAILOR SHOPS, Elmira Reformatory, ELMIRA, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids May 23. CD 5/23.

Joseph Davis, Inc., 1020 W. Tuper St., Buffalo, N. Y., LB $222,237 (2 bidders) heating contract for laundry, etc. Elmira Reformatory (Elmira, N. Y.).

▲ **Lieberman & Freistat**, c/o Bankers Ltd., 60 Hamilton St., Paterson, N. J. Own Forces. $1,400,000, 95 HOMES, East Rd., BELFORD, N. J., Frank A. Amodio, 60 Broad St., Red Bank, N. J., engr.

▲ **Herbert Grunick**, P.O. Box 449, Metuchen, N. J., Own Forces, $2,400,000, 110 HOMES, Old Post Rd., to be known as Tanglewood Homes, EDISON, N.J., Erwin Gerber, 11 Commerce St., Newark, N. J., archt.

Thermal, Inc., 407 Main St., Metuchen, N. J. CA Est. $140,000, installing air-conditioning in Broad St. BLDG. (125) (cooling towers, etc.), ELIZABETH, N. J., Esso Research & Eng. Co., 125 Broad St., Elizabeth, N. J.

Harold A. Pearson, 180 State Rd., Prilnceton, N. J., Separate Contracts. $800,000. 52-unit RESIDENTIAL DEVELOPMENT, Elm Ridge Park, HOPEWELL, N. J.

▲ **Murray, Manor, Adler & Rosenbloom**, Chapel Ave. and Kings Highway, Merchantville, N. J., Separate Contracts, $7,000,000. 600-unit RESIDENTIAL DEVELOPMENT, Kings Highway, MERCHANTVILLE, N. J. Stanley Lawrence Klein, 17 Academy Place, Newark, N. J., archt.

▲ **Joseph Deutsch**, P.O. Box 667, Keyport, N. J., Own Forces, $1,250,000, 114 HOUSES, Route 36 to be known as Upper Raritan, MIDDLETOWN, N. J., Harry Maslow, 275 Morris Ave., Elizabeth, N. J., archt.

▲ **William Pasley**, 27 Warwick Road, Summit, N. J. Own Forces. $3,250,000. 100 HOUSES, Raynor Rd. and West Hanover Ave., Morris Twp., MORRISTOWN, N. J. Derick Kipp, 363 Bloomfield Ave., Montclair, N. J., archt.

Windy Hills Development, c/o A. J. Vilone, 2213 Concord Ave., Fairfax, Wilmington, Del., Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Windy Hills, NEWARK, N. J.

▲ **Bd. Trustees St. Peter's Hospital**, Easton Ave., New Brunswick, N. J., rejected bids Apr. 17, 2 story WINGS connecting with existing hospital. NEW BRUNSWICK, N. J. $4,500,000. Will re-advertise. CD 4/4.

John J. Klein & Sons, Inc., 120 Eggerts Crossing Rd., Trenton, N. J., Separate Contracts. $350,000. RESIDENTIAL DEVELOPMENT, Devon Ave., etc., TRENTON, N. J. William W. Vanderclute, West Cranford, N. J., archt.

Luria Engineering Co., Easton Ave., Bethlehem, Pa., CA $448,437, GYMNASIUM and AUDITORIUM on college's new campus on Lawrenceville Rd., TRENTON, N. J. Rider College, 428 East State St., Trenton, N. J. Awarded May 24. CD 9/26.

Rocco De Laurentis, Hammonton, N. J. CD $93,000. WAREHOUSE and CANNERY alterations, WILLIAMSTOWN, N. J., Violet Packing Co., Railroad Ave., Williamstown, N. J. Edward G. Scheidt, Newfield, N. J., archt.

Efco Constr. Co., 33 Park Ave., Westmont, N. J., LB $163,500, GARAGE BLDG. and PAVING, WOODBURY, N. J. Kent Custom Homes, c/o Cox & Guttman, archts., 709 Market St., Camden, N. J.

Concord Constr. Co., 1136 Easton Rd., Roslyn, Pa., Separate Contracts. $344,000. RESIDENTIAL DEVELOPMENT, Ambler Rd., etc., AMBLER, PA.

▲ **Wil Avon Merchandise Mart, Inc.**, 100 Whitemarsh Rd., Ardmore, Pa., Separate Contracts. $1,000,000. MERCHANDISING MART, BOWLING ALLEY, and playland, AVONDALE, PA.

Reilly Whitman Walton Co., Conshohocken, Pa., Separate Contracts. $93,000. FACTORY and WAREHOUSE addns., alterations, CONSHOHOCKEN, PA. Greeby-Riley Assocs., 182 W. Airy St., Norristown, Pa., engrs.

▲ **Baton Constr. Corp.**, 1717 Sansom St., Phila., Pa. LB $3,700,000. general contract SENIOR HIGH SCHOOL and parking area, Glenside, ELKINS PARK, PA. Cheltenham Twp. School Dist., Elkins Park, Pa. Bids May 21. CD 5/3.

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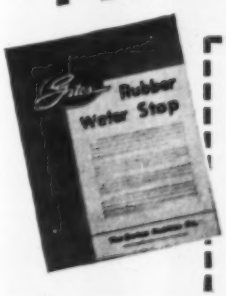

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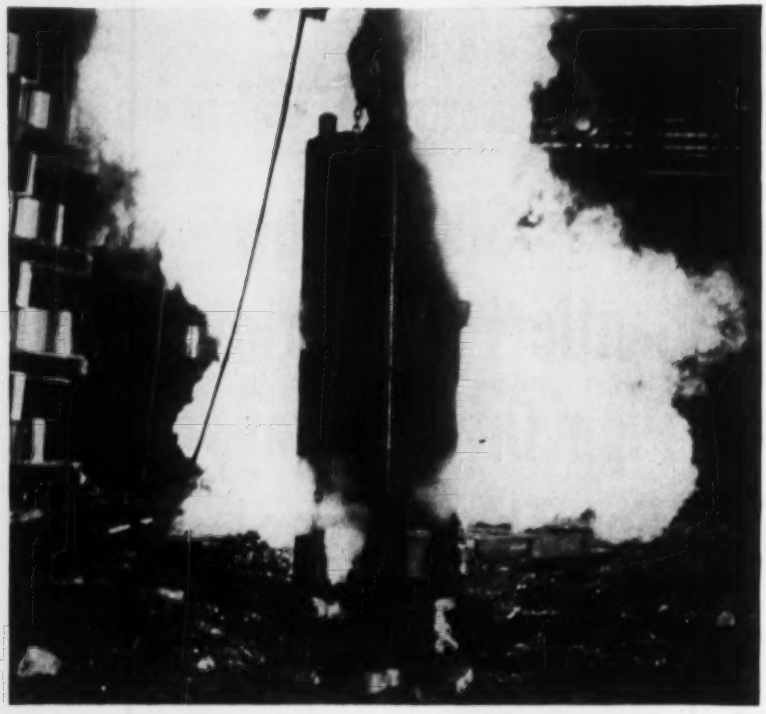

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▲ **Penn Willow Land Corp.**, Risant & Berman, 45 N. Station Plaza, Great Neck, N. Y., Separate Contracts. **$1,500,000.** RESIDENTIAL DEVELOPMENT, Upper Dublin Twp., FORT WASHINGTON, PA.

S & S Builders, Inc., Kennett Square, Pa., Separate Contracts. **$540,000.** RESIDENTIAL DEVELOPMENT, KENNETT SQUARE, PA.

William H. Gill Jr., Inc., Lansdowne, Pa. LB **$686,100.** general contract HIGH SCHOOL addn., alterations, LANSDOWNE, PA. Lansdowne-Aldon Joint School System, Lansdowne, Pa. Bids May 22. CD 5/3.

▲ **Levitt & Sons, Inc.**, Levittown, Pa., Separate Contracts. **$2,010,000.** 201-unit RESIDENTIAL DEVELOPMENT, Middletown Twp., Lots 9315 through 9515, LEVITTOWN, PA.

Middletown Twp. School Bd., Lima, Pa., rejected bids May 2, Roosevelt Elementary SCHOOL addn., paving and sewage disposal system, LIMA, PA. LB **$454,444.** CD 5/17, under LB. Will re-advertise.

Tower Constr. Co., 7267 Rising Sun Ave., Phila., Pa., Separate Contracts. **$750,000.** 58-unit RESIDENTIAL DEVELOPMENT, Colebrook Rd., etc., PHILA. PA.

Royal Park Homes, Inc., 1604 Walnut St., Phila., Pa., Separate Contracts. **$350,000.** RESIDENTIAL DEVELOPMENT, Tolbut Sts., etc., PHILA., PA.

John McShain, Inc., 17 and Spring Garden Sts., Phila., Pa. CA **$450,000.** DORMITORY, ROSEMONT, PA. Rosemont College, Rosemont, Pa. Gleeson & Mulrooney, 1612 Market St., Phila., Pa., archts. William G. Flurer, 6790 Market St., Upper Darby, Pa., engr.

S. Franklin Pancoast, Springfield, Pa. CA **$93,000.** 1 story, 40x100 ft., masonry SERVICE BLDG. and BODY REPAIR addn. and alterations, SPRINGFIELD, PA. Rumsey Chevrolet, Springfield, Pa.

Kerr & Schuh, Inc., Walker Rd., Wayne, Pa., Separate Contracts. **$750,000.** RESIDENTIAL DEVELOPMENT, Welsh Rd., SPRING HOUSE, PA.

▲ **William F. Sutter**, Nescopeck, Pa. LB **$1,631,890.** general contract JUNIOR HIGH SCHOOL, wells and parking area, Ercildowne, THORNDALE, PA. Brandywine Area Joint School Auth., Thorndale, Pa. Bids May 23. CD 4/24.

▲ **Fox Constr. Co.**, Butler Pike, Plymouth Meeting, Pa., Separate Contracts. **$1,200,000.** RESIDENTIAL DEVELOPMENT, Radnor Twp., VILLANOVA, PA. Howard Krasnoff, 415 Church Lane, Elkins Park, Pa., archt.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa. CA **$2,318,095.** PRISON and prison farm in Pocopson Twp., WEST CHESTER, PA. Comrs. Chester Co., West Chester, Pa. Bids Apr. 25. CD 5/7, under LB.

Beechfield Constr. Co., 10 E. Fayette St., Baltimore, Md., Separate Contracts. **$935,400,** 166 two story 1 family masonry HOMES, row type in groups, Beechfield Ave., Brisbane Rd. and Williston St., Western section of BALTIMORE, MD.

▲ **Hedin Constr. Co.**, 2900 Newton St. N.E., Wash., D. C. CA **$1,657,200.** Base Bid, incl. Alternate, Newport Mills Rd. JUNIOR HIGH SCHOOL, Kensington, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Bids May 28, awarded May 31. CD 5/31, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

† **Va., Oceana**—OBSTRUCTION CLEARANCE—BA 6/18—Dist. P. Wks. Office, Fifth Naval Dist., Bldg. N-26, U. S. Naval Base, Norfolk, obstruction clearance, Naval Air Station, NBy 10709, Spec. 10709/57. CD 8/28.

† **Fla., Pensacola**—TEST CELLS—BA 6/20—Officer in Charge of Constr., Building 45, U. S. Naval Air Station, Pensacola, semi portable jet engine test cells, Forest Sherman Field, U. S. Naval Air Station, NBy 13228, Spec. 13228/57.

† **Fla., Pensacola**—BUILDING—BA 6/20—Officer in Charge of Constr., Bldg. 45, Naval Air Station, Building 678 alterations, Naval Air Station, NBy 8738, Spec. 8738/56.

N. C., Buxton—BA 6/20—Dist. P. Wks. Office, Fifth Naval Dist., Building N-26, U. S. Naval Base, Norfolk, Va., sewerage sys. repairs, Naval Facility Cape Hatteras, NBy 10769, Spec. 10769/57.

† **VIRGINIA**—BA 6/20—Bureau P. Rds., Dpt. Commerce, 1400 Columbia Pike, Arlington, Proj. 38-8-C4-03, stone masonry guard walls at selected locations, Shenandoah National Park and 1A3, Blue Ridge Parkway. CD 5/14/56.

La., West Monroe—BA 6/25—City, City Hall, sanitary sewerage sys. extens., consisting of (A) gravity collection system and (B) sewage pumping stations. Plans deposit $60. Fromherz Eng., 816 Howard Ave., New Orleans, engrs.

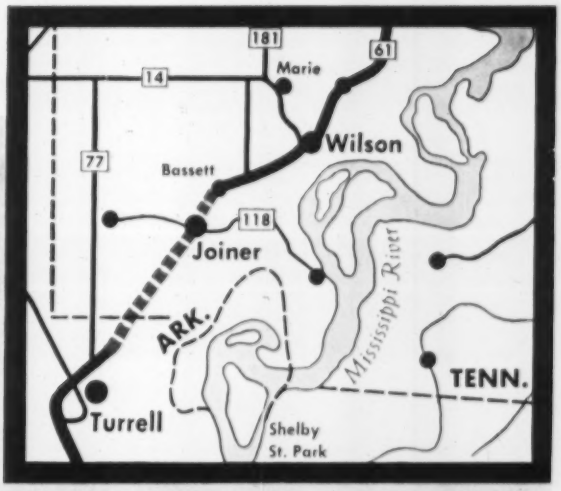
† **Va., Fort Belvoir**—AAA TRAINING FACILITIES—BA About 6/26—U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C. Special AAA Training facilities addns., ENG-49-808-57-98-(96) Mills, Petticord & Mills, 3308 14 St. N.W., Wash., archts. CD 5/31.

† **N. C., Fort Bragg**—BA 6/27—PARKING and MAINTENANCE BLDG., etc.— U. S. Eng., 308 Mustomhouse, Wilmington, one parachute packing and maintenance bldg., one airborn materials test bldg., 2 battallion headquarters bldgs., ammunition storage facilities and related facilities, ENG-31-075-57-52. CD 8/27.

† **B. W. I., Trinidad**—BASE FACILITIES, etc.—BA 6/28—Resident Officer in Charge of Constr., Bureau Yards & Docks Contracts, 245 Alcazar Ave., Coral Gables, Fla., U.S.A., rehabilitation of base facilities and electronic radar laboratory for AF-WS-219-L Downrange

(Continued on page 126)

Super-Scooper! One of D. B. Hill's big T-12's in action on the Highway 61 project in Arkansas. Hill uses Esso products exclusively in all of their 100 pieces of equipment.



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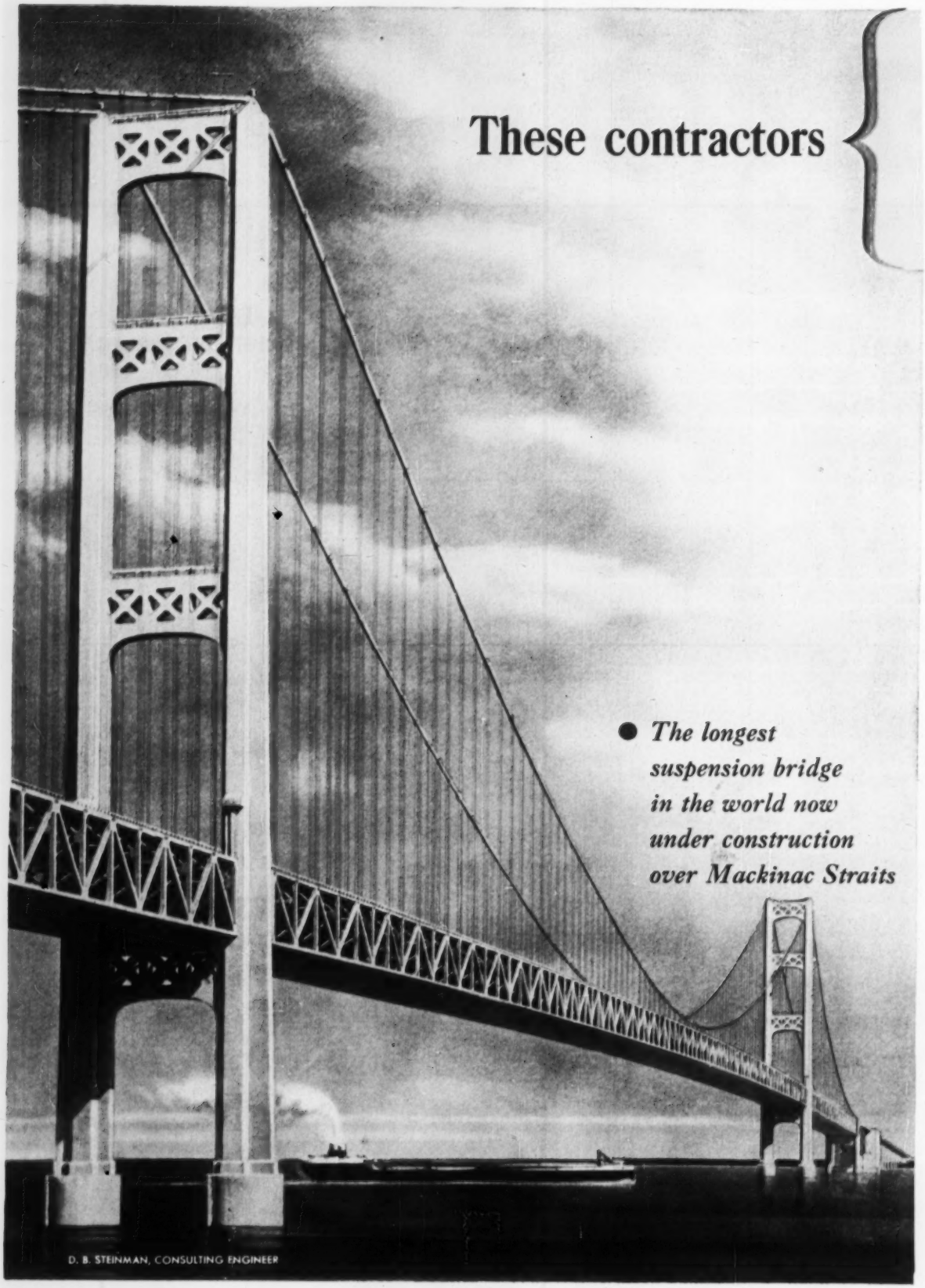

These contractors
● The longest suspension bridge in the world now under construction over Mackinac Straits
D. B. STEINMAN, CONSULTING ENGINEER

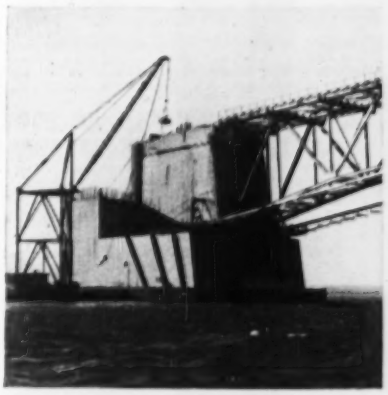
Merritt-Chapman & Scott Corporation and American Bridge Division of U. S. Steel Corporation

use Shell Lubricants in the construction equipment on Mackinac Bridge project

Today's engineering knowledge and modern construction equipment are making the mighty Mackinac Bridge a reality. This equipment requires oils and greases which will remain stable and give adequate lubrication at extreme temperature ranges. To keep their heavy-duty machines operating at maximum efficiency with a minimum of down time, both companies, Merritt-Chapman & Scott Corporation and American Bridge, chose Shell Lubricants and Fuels.

The Mackinac Bridge project is just one of the many construction operations where equipment was lubricated and protected by Shell products. Wherever *heavy-duty* equipment operates, Shell Lubricants and Fuels are being used to keep machinery in top operating condition and hold maintenance costs down. Perhaps it will pay you to investigate the savings that can be realized through the use of Shell Industrial Lubricants and Fuels.

American Bridge Division of U. S. Steel Corporation has strung a total of 12,500 tons of cable as part of the 66,500-ton superstructure.



One of the 34 piers of the bridge substructure built by Merritt-Chapman & Scott Corporation

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and many other fuels and lubricants

SHELL OIL COMPANY

50 West 50th Street, New York 20, N. Y. • 100 Bush Street, San Francisco 6, Calif.

SHELL

(Continued from page 122)

facilities at U. S. Naval Station, NBy 8693, Spec. 8693/57.

† **Ky., Outwood**—BOILER PLANT IMPRVS.—BA 7/16—Veterans Admin., Munitions Bldg., Wash. 25, D. C., boiler plant imprvs. Building 14, Veterans Administration Hospital. $75,000. E. R. Ronald & Assoc., 554 S. Third St., Louisville, engrs.

BUILDINGS—BA

† **Va., Williamsburg**—GYMNASIUM, etc.—BA 6/18—Dist. P. Wks. Office, Fifth Naval Dist., Bldg. N-26, U. S. Naval Base, Norfolk, Zone 11, gymnasium and family housing, Armed Forces Experimental Training Station, Camp Peary, NBy 7748, Spec. 7748/57

Ky., Lexington—DORMITORY, etc.—BA 6/19—Transylvania College, 200 W. 3 St., dormitory and dining hall. Over $350,000. Plans deposit $50. John T. Gilliz, 180 Walnut St., Lexington, engr.

† **Va., Fort Belvoir**—BARRACKS—BA About 6/19—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., rehabilitation of 7 hospital barracks, Bldgs. NN 16, NN 17, NN 18, NN 19, NN 20, NN 21 and NN 81. CD 7/17/52.

† **Fla., Egmont**—BARRACKS—BA 6/20—Seventh Coast Guard Dist., 150 S.E. 3 Ave., Miami, barracks bldg. U. S. Coast Guard Egmont Key Light Station, Inv. 7207. Plans deposit $5.

† **Ky., Owensboro**—ARMY RESERVE TRAINING CENTER—BA 6/27—U. S. Eng., P.O. Box 59, Louisville, Zone 1, Army Reserve Training Center, ENG-15-029-57-61. $150,000.

HEAVY CONSTRUCTION—LB & CA

Blackwell Eng. Co., Warrenton, Va., CA **$656,142** Contr. 2 two m.g.d. sewage treatment plant, FAIRFAX, VA. Town, 101 Mechanic St., Fairfax, Va. Bids May 15. CD 5/22, under LB.

† **Tufano Contg. Corp.**, 32-17 Lawrence St., Flushing, N. Y., LB **$987,280**, est. $1,060,141 (6 bidders). Runway 15-33 exten. and reinforcement, Byrd Field, Proj. ENG-44-110-57-30, RICHMOND, VA. U. S. Eng., foot of Front St., Norfolk 1, Va. Bids May 29. CD 5/8, under LB.

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh, Bids opened 5/28

N. C.—**Blue Ridge Structure Co.**, London Rd., Asheville, N. C., LB **$87,850**, est. $50,000-$75,000, structures, US 129 from point in Robbinsville, east to point approx. 2.5 mi. north Topton and US 19, Proj. 9301 S-346 (5), F.H.-7-A, Graham Co.;

N. C.—**Dickerson, Inc.**, Monroe, N. C., LB **$210,243**, est. $400,000-$500,000 or over, structures over Catawba River, Proj. 6379, Catawba and Iredell Counties;

N. C.—**Boyd & Goforth, Inc.**, Pineville Rd., Charlotte, N. C., LB **$347,571**, est. $400,000-$500,000, structures, Proj. 6255, Catawba and Iredell Counties;

N. C.—**Jas. T. Triplett, Inc.**, Chester, S. C., LB **$167,429**, est. $175,000-$200,000, structures, Proj. 4377 I-703 (4), Harnett and Johnston Counties;

N. C.—**Wannamaker & Wells, Inc.**, Orangeburg, S. C., LB **$94,714**, est. $75,000-$100,000, bridge and approaches 0.79 mi. over Bear Creek on county road north of Robbins, Proj. 6-313 S-698 (3), Moore Co.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh, Bids opened 5/28.

N. C.—**F. D. Cline Paving Co.**, Box 349, Raleigh, N. C., LB **$329,710**, est. $400,000-$500,000 or over, STBC, single asph. base and surf. and strs. 11.38 mi. US 421 from point near N. C. 242, southeast to paved county road 1 mi. northwest of Clinton, Proj. 2714-F-68 (4), Sampson Co.; LB **$338,913**, est. $300,000-$400,000. STBC, CABC, single asph. base and bit. conc. surf. 5.48 mi. surf. on addn. lane US 301 from Lucama east to junction US 117, near Wilson and resurf. existing lane, Proj. 2966 B. S. 4-6-34-140, Wilson Co.;

N. C.—**Thompson-Arthur Paving Co.**, Box 1197, Greensboro, N. C., LB **$325,066**, est. $300,000-$400,000. SABC shoulders and bit. conc. binder and surf. US 70 from dual lane section (US 421) south of Greensboro, east to N.C. 49 at Burlington, Proj. 5305 IN-644-(13), Guilford and Alamance Counties;

N. C.—**Propst Constr. Co., Inc.**, Box 752, Concord, N. C., LB **$671,340**, est. $400,000-$500,000 or over, SABC and b. conc. binder and surf. 10.07 mi. Henderson By-pass from point US 1 approx. 1 mi. north of Kittrell, north on East Side of Henderson to point in vicinity US 1 near side road to Greystone, Proj. 4735 F-175 (6) F-701 (2), Vance Co.;

N. C.—**Brown Paving Co.**, Box 484, Lexington, N. C., LB **$473,398**, est. $400,000-500,000 or over, STBC, bit. conc. binder and surf. and strs. 10.60 mi. addn. lane on relocation US 301 between Cumberland County line and N. C. 50 in Benson. Proj. 4377-I-703 (4), Harnett and Johnston Counties;

N. C.—**E. B. Towles Constr. Co., Inc.**, Box 1617, Wilmington, N. C., LB **$226,303**, est. $225,000-$250,000, CABC, bit. conc. binder and surf. and drainage 1.57 mi. US 117 from point north of Wallace, south thru Wallace to point just north of South city limits of Wallace, Proj. 2240 F-585 (7), Duplin Co.;

N. C.—**Nello L. Teer Co.**, Trust Bldg., Durham, N. C., LB **$76,176**, est. $25,000-$50,000, SABC and b. conc. binder and surf. 1.01 mi. N.C. 751 from point approx. 530 ft. south of Duke University Rd., northwest to point approx. 390 ft. west of Erwin Road. Code 5900-505, Durham Co.;

N. C.—**Asheville Contg. Co.**, Box 5119, Biltmore Station, Asheville, N. C., LB **$134,754**, est. $175,000-$200,000, CABC and BST 2.6 mi. relocation of US 21 from point 0.5 mi. west of Thurmond, southeast across Country to point 970 ft. beyond Wilkes-Surry County line, Proj. 7796, SF-273 (11), Wilkes and Surry Counties; LB **$531,945**, est. $400,000-$500,000, CABC, bit. surf. treating 9.5 mi. US 129 from point in Robbinsville, east to point approx. 2.5 mi. north of Topton and US 19, Proj. 9301 S-346 (5), F.H.-7-A, Graham Co.;

N. C.—**Clement Bros. Co.**, Lenoir, N. C., LB **$538,640**, est. $400,000-$500,000, SABC and b. conc. binder and surf. 8.64 mi. N.C. 16 from Catawba River southeast to point in Charlotte,. Proj. 6563 F-444 (10), B.S. 10-6-67-113, Mecklenburg Co.;

N. C.—**Southern Roadbuilders, Inc.**, 2312 Ada Ramp Waldon Rd., Augusta, Ga., LB **$2,516,115**, est. $1,000,000, sub-grade & conc. pavement and SABC and bit. surf. treat 11.47 mi. on relocation of US 29, Charlotte By-Pass, Proj. 6524, I-647 (4) U-647 (5), Mecklenburg Co.;

N. C.—**Dickerson, Inc., Monroe, N. C.**, LB **$104,890**, est. $100,000-$125,000. b. conc. surf. county road from US 70 at Wise Fork, southeast to point US 17 between Pollocksville and Rhems, Proj. B.S. 2-7-19-22, Jones Co.;

N. C.—**Rea Constr. Co.**, Pineville Rd., Charlotte, N. C., LB **$239,398**, est. $250,000-$300,000. b. conc. binder and resurf. 20.15 mi. US 21 and N.C. 150, Proj. B.S. 10-6-67-114, B.S. 12-6-82-143, Mecklenburg and Iredell Counties;

N. C.—**Midstate Contractors, Inc.**, Hickory, N. C., LB **$244,306**, est. $250,000-$300,000, CABC shoulders and b. conc. binder and resurf. 17.62 mi. US 23 and 441 between Franklin and Dillsboro and US 23 and 19A from west city limits of Sylva east to Scott Creek bridge, Proj. 9631 SF-275 (9) Code 5900-1419, Macon and Jackson Counties;

N. C.—**W. E. Graham & Sons**, Cleveland, N. C., LB **$179,277**, est. $200,000-$225,000, grading 8.27 mi. addnl. lane on U. S. 70 and 64 between Statesville By-Pass and Catawba River, Proj. 6255, 6379, I-700 (12), I-700 (13), Catawba and Iredell Counties.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

Chas. R. Shepherd, Inc., Doraville, Ga., CA **$873,971**, est. $400,000-$500,000 grading and strs. 12.7 mi. relocations US 1 from point just southwest of Middleburg northeast to point on US 1 approx. 1 mi. south of Virginia State Line, Proj. 4950, Vance and Warren Counties. Bids Apr. 23, awarded May 15. CD 4/29, under LB.

† **Charles J. Craig Constr. Co.**, 1610 Westminster Dr., Columbia, S. C., LB **$419,897**, infirmary and dental clinic at Marine Corps Auxiliary Air Station, NBy 8628, Spec. 8628/56, BEAUFORT, S. C. Dist. P. Wks. Office, Bldg. No. 13, U. S. Naval Base, Charleston, S. C. Bids May 21. CD 5/7.

† **Merritt Dredging Co.**, 63 Rutledge Ave., Charleston, S. C., LB **$60,200**. maintenance dredging at Naval Minecraft Base and Naval Fleet Landing, NBy 10413, CHARLESTON, S. C. Dist. P. Wks. Office, Bldg. No. 13, U. S. Naval Base, Charleston, S. C. Bids May 22, CD 4/16.

† **Poe Piping & Heating Co.**, 556 Berry Ave., Greenville, S. C., LB **$384,217**. heating plant and steam lines at Marine Corps Recruit Depot, NBy 6498, PARRIS ISLAND, S. C. Dist. P. Wks. Office Bldg., No. 13, U. S. Naval Base, Charleston, S. C. Bids May 21. CD 5/7.

† **Thompson Constr. Co.**, Peoples Bldg., Charleston, S. C., LB **$383,033**. theater, Marine Corps Recruit Depot, NBy 6497, PARRIS ISLAND, S. C., Dist. P. Wks. Office, Bldg. No. 13, U. S. Naval Base, Charleston, S. C. Bids May 21. CD 5/7.

▲ **FLORIDA**—State Road Dpt., Wilbur E. Jones, chn., Tallahassee,

Hardaway Contr. Co., Box 477, Port Tampa, Fla., CA **$6,769,003**, 15,872 ft. bridge on new crossing of Old Tampa Bay, having six 33-ft. spans, two hundred eighty-six 48-ft. spans, twenty-eight 66-ft. spans, and one 98-ft. span; substructures for 33-ft. and 48-ft. spans are bents of 24-in. concrete piles; substructure for 66-ft. spans are pedestal type piers founded on groups of 24-in. concrete piles; substructure for 98-ft. channel span is piers constr. in cofferdams and founded on steel H-piles; decks on prestressed concrete beams having 56-ft. clear roadway divided by 4-ft. wide concrete median strip with conc. safety walks 2-ft. wide on roadway lights 3.006 mi. between St. Petersburg and Tampa, FAI Proj. No. I-104-1(6) Jos Nos. 1519-201 and 1027-201, SR 400, Pinellas and Hillsborough Counties. CD 5/23, under LB.

FLORIDA—State Road Dpt., Tallahassee,

J. W. Conner & Sons, Inc., Box 2522, Tampa, Fla., CA **$674,999**, limerock base, b. conc. surf. course with binder, 288 ft. bridge 7.396 mi. SR 582, Job 1029-101, Hillsborough Co. Bids Mar. 7. CD 3/13, under LB.

The Poole & Kent Co., 2403 N. W. 7 St., Miami, Fla., LB **$224,582** Base Bid No. 1; Alt. Deduct **$6,800**; LB **$84,800** Base Bid No. 2, Alt deduct **$8,900**; field distr. sys., power distr. and communication sys., South Florida State Hospital, West Hallandale, FORT LAUDERDALE, FLA. Bd Comrs. of State Institutions, State Capitol, Tallahassee, Fla. Bids May 23. CD 5/8.

State Bd. Control, Administration Bldg., University of Florida, Gainesville, Fla., rejected bids Mar. 19, State Proj. 408, 409 and 412, enclosing existing swimming pool, build and enclose swimming pool for Negroes, Industrial Building for Negroes, Fla. School for Deaf and Blind, ST. AUGUSTINE, FLA. LB **$225,857**. New bids June 4. CD 3/27, under LB.

ALABAMA—H. L. Nelson, dir. State Hy. Dpt., Montgomery, Zone 4, Bids opened 5/24,

Ala.—**Goodwyn-Williamson Co., Inc.**, Robinson Springs, Montgomery, Ala., LB **$154,005**, two overheads over A.C.L. R.R. in Dothan between U.S. No. 231 north of Dothan and U.S. No 84 east of Dothan, Proposal 'B', 0.054 mi. Fed. Aid Proj. No. U-UG-383(5), Houston Co.;

Ala.—**R. & S. Constr. Co., Inc.**, Birmingham, Ala., LB **$140,344**, overhead over St. Louis and San Francisco R.R. and bridge over Sipsey River near the Beard Church, 0.129 mi. Fed. Aid. Sec. Projs. No. SG-870(1) & S-870(2), Proposal "B", Fayette Co.;

Ala.—**Reynolds Pile Driving Co., Inc.**, Jackson, Ala., LB **$94,183**, bridges, culverts on 0.113 mi. several roads, Fed. Aid Sec. Projs. No. S-889(1), 890(1) & SACP 7351-B, Bullock Co.;

Ala.—**G. W. Norrell Constr. Co.**, Georgiana, Ala., LB **$543,809**, bridges over Mulberry Fork of Warrior River on Interstate Route I-202, Proposal "B", 0.132 mi. Fed. Aid Proj. No. I-202-3 (9), Blount and Cullman Counties. CD 5/15.

City, City Hall, Street Dpt., Decatur, Ala., Own Forces, **$500,000**. city street imprvs. DECATUR, ALA. CD 5/1/56.

▲ **MISSISSIPPI**—State Hy. Dpt., T. C. Robbins, dir., Jackson, Bids opened 5/28.

Miss.—**Cobb Bros. Constr. Co. Inc.**, 313-3rd Ave. S., Meridian, Miss. CA **$305,993**, est. $340,000, grading, draining, culverts, 4 bridges 10.419 mi. Miss. Hy. No. 569 between Liberty and Smithdale, Proj. No. S. 0167(4) A, Amite Co.; CA **$274,434**, est. $285,000, grading culverts, 1 box bridge 10.161 mi., 1 bridge, topping and temporary grav. surface course Miss. Hy No. 13 between Forkville and Lena, Proj. S 0332 (3) A, Scott and Leake Counties; CA **$118,853**, est. $135,000, incidental grading, culverts, base and double base surf. treatment, 8.504 mi. Miss. Hy. No. 528 between Heidelberg and Bay Springs, Proj. S 0336 (3) A, Jasper Co.;

Miss.—**J. B. Michael & Co. Inc.**, 1021 Heywood, Memphis, Tenn., CA **$2,372,115**, est. $2,600,000, grading, culverts, topping, 2 hy. underpasses, base, double base surf. treatment and con. 12.85 mi. US Hy No. 80 between Bovina and Bolton, Projs. I-IN-094-1(4) and 7-094-1(5), Warren and Hinds Counties; CA **$1,098,262**, est. $1,410,000, grading, 1 box bridge, 1 dual birdge, 1 hy. underpass and 3 dual. Hy. overpasses 4.596 mi. US Hy. No. 51 between Aldens and Tennessee Line, Proj. I-IN-091-4(7). Desota Co.;

Miss.—**O. J. Stanton & Co.**, Greenwood, Miss., CA **$215,330**, est. $290,000, grading, draining, culverts, 1 bridge, 2 box bridges, topping and temporary grav. surf. course 8.794 mi. Miss. Hy. No. 25 between Louisville and Carthage, Proj. F-056-1(6), Winston Co.;

Miss.—**Burdine Constr. Co.**, 760 W Clay, Greenville, Miss., CA **$756,788**, est. $760,000, grading, culv. base and re-conc. 2.359 mi. Miss. Hy. No. 1 in and near Greenville, Proj. FU-043-1(3), Washington Co.;

Miss.—**J. W. Snowden Constr. Co.**, Carter Bldg., Hattiesburg, Miss., CA **$79,740**, est. $75,000, grading, culverts, 1 bridge, base and double base surf. treatment, 0.394 mi. US Hy. No. 45 between Quitman and Meridian, Projs. F 025-1(2), Clarke Co.;

Miss.—**Hyde Constr. Co.**, 1804 N. Mill, Jackson, Miss., CA **$497,085**, est. $520,000, grading, culverts, 3 box bridges, 1 underpass, base, double base surf. treatment and hot plant mix asph. surf. 1.89 mi. US Hy. No. 51 between Terry and Jackson, Projs. I-091-2(12), Hinds Co. Bids May 28. Grand total $5,718,599. CD 5/17.

† **Robert L. Guyler**, Box 581, Lampasas, Tex., LB **$246,099** (3 bidders) power and operations bldgs. addn., Lake Charles Air Force Base, Inv. 57-43, LAKE CHARLES, LA. U. S. Eng., P. O. Box 1229, Galveston, Tex. Bids May 24. CD 4/23.

† **Perrilliat-Rickey Co. Inc.**, Box 13128, New Orleans, La., LB **$610,056**. permanent masonry airmen's dining hall, Lake Charles Air Force Base, Inv. 57-38, LAKE CHARLES, LA. U. S. Eng. P. O. Box 1229, Galveston, Tex. Bids May 21. CD 4/8.

Oscar Sylvester Jr., Ville Platte, La., CA **$84,393**. street paving work, Proj. No. 2, VILLE PLATTE, LA. Town, Town Hall, Ville Platte, La. Bids Apr. 16. CD 3/29.

† **Roy Ryan & Sons**, 5416 Booneville Hy., Evansville, Ind., LB **$432,870**, est. $401,363, culvert sewers and relocation railroad on 3 trestles, Greenup Locks & Dam and C & B R.R. Co., CIVENG-46-0220-57-79 KENTUCKY U. S. Eng., P. O. Box 2127, Huntington, W. Va. Bids May 27. CD 5/28.

† **Shaw & Estes Co.**, 1407 S. Akard St., Dallas, Tex., LB **$191,015** rein.-con. bldg. to test jet engines, McGhee Tyson Air Force Base, KNOXVILLE, TENN. U. S. Eng., 306 Federal Bldg., Nashville, Tenn. CD 8/20.

BUILDINGS—LB & CA

▲ **Bruce Constr. Corp.**, 1118 N.E. 2 Ave., Miami, Fla., CA **$2,000,000**. 294-room Beau Rivage HOTEL, Collins and 99 Sts., BAL HARBOUR VILLAGE, FLA. I.L.M. Corp., 1118 N.E. 2 Ave., Miami, Fla. Bids Apr. 5. CD 4/16, under LB.

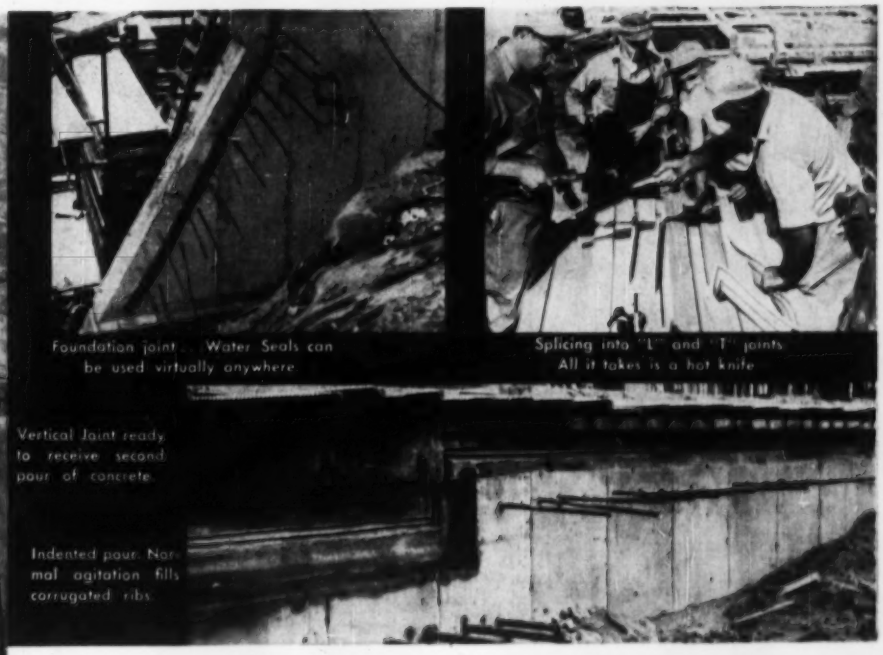
Joseph G. Moretti, Inc., 2401 N. W. St., Miami, Fla. LB **$364,942** Base Bid, TUBERCULOSIS BLDG. No. 30, Chronic M & S Bldg. No. 31, RECREATION BLDG. No. 34, South Florida State Hospital, West Hallendale, FORT LAUDERDALE, FLA. BD. Comrs. of State Institutions, State Capitol, Tallahassee, Fla. Bids May 23. CD 5/1.

Grinnell Co., 609 New Park Ave., West Hartford 10, Conn. CA Job 2129-B, C, and G, fire protection system for MANUFACTURING and OFFICE BLDG., WEST PALM BEACH, FLA. Pratt & Whitney Aircraft Div., United Aircraft Co., Box 2691, West Palm Beach, Fla. Bids Mar. 15. CD 3/14.

Henry C. Beck Co., First National Bank Bldg., Atlanta, Ga., CA Job 2129-A, F, MANUFACTURING and OFFICE BLDG., Architectural Trades, WEST PALM BEACH, FLA. Pratt & Whitney Aircraft Div., United Aircraft Co., Box 2691, West Palm Beach, Fla. Bids May 14.

▲ **Chaves Constr. Co. of Miami**, 310 95 St., Surfside, Fla., CA **$2,500,000**. 175-room HOTEL, 18925 Col-

(Continued on page 129)



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Splicing into "L" and "T" joints. All it takes is a hot knife

Vertical Joint ready to receive second pour of concrete

Indented pour. Normal agitation fills corrugated ribs

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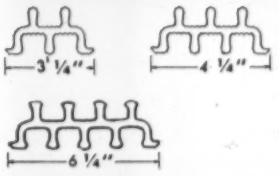
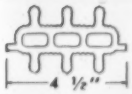
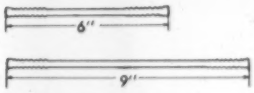
LABYRINTH



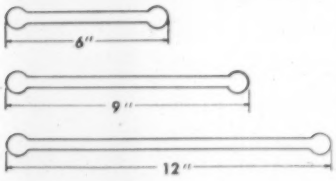
CELLULAR



FLEXTRIP



DUMBBELL



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"Trees jest don't grow long enough for this here job," grumbled Paul Bunyan to Babe, the Blue Ox. He was driving piles for his bridge across Lake Michigan. "Now if I could git me one o' them machines ✳ the Baxter folks developed, Babe, I could splice me up a piling 900 feet long and get to the bottom o' this pesky pond."

BAXCO PRESSURE TREATED PILING *(spliced or unspliced!)*

✳ As a matter of fact, Paul, we *did* develop a pile-splicing machine—the only one of its kind in the world. It happened this way: engineers found that record length piling—160 feet long—would be required for the pier fender structure on the Richmond-San Rafael bridge in San Francisco. No such lengths existed. So what to do? So BAXCO engineers got busy with blades and motors and wheels—and came up with the answer...an efficient machine that spliced together 1448 of the longest pilings ever seen. And did the job in record time.

P.S. We are not inventors—except when necessary. We are producers of pressure-treated forest products: poles, piling, structural timbers, etc. But you'll find that same spirit pervades the entire BAXCO organization—*to give the customer what he wants*, when he wants it. Inquire today.

Douglas fir piling from our own stands of West Coast timber...Creosote pressure treated to Federal and AWPA specifications.

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J. H. BAXTER & CO. *120 Montgomery Street, San Francisco 4, California*

(Continued from page 126)

lins Ave., North Biscayne Beach, SUNNY ISLES, FLA. E & E-Holding Corp., c/o contractor. CD 5/13.

Southeastern Mfg. Co., 2430 Greensboro Ave., Tuscaloosa, Ala., LB $459,800. 50-units, low rent HOUSING, AUBURN, ALA. City, Auburn Housing Authority, Auburn, Ala., Bids Apr. 25, CD 3/28.

Ale Bornstein, 1217 S. Logan St., Louisville, Ky., CA Est. over $500,000. 3-story PARKING GARAGE, 5 and Main Sts., LOUISVILLE, KY. Greater Louisville Building & Loan Co., 419 W. Market St., Louisville, Ky. CD 9/20.

Mark K. Wilson Co., 1478 Market St., Chattanooga, Tenn., LB $449,850; constr. STUDENT-FACULTY-ALUMNI CENTER, CHATTANOOGA, TENN. University of Chattanooga, Chattanooga, Tenn. Smith & Ashby, Volunteer Bldg., Chattanooga, Tenn., archts.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

O., Akron—BA 6/19—City, Leo G. Walter, dir. P. Serv., City Hall, Contr. 449, water mains approx. 8,100 ft. 16 in. water line in Stow Rd. and Barlow Rd. Plans deposit $25. CD 7/23/52.

BUILDINGS—BA

▲**Ill., Kankakee**—HOSPITAL—BA 6/18—St. Mary's Hospital, 192 S. 5th St., 5 story, bsmnt., brick hospital addn. $2,100,000. Fugard Burt Wilkinson & Orth, 520 N. Michigan Ave., Chicago, archts. CD 12/6.

Wis., Lake Geneva—SCHOOL—BA 6/18—Geneva-Genoa City High School, Lake Geneva High School, Fritz von Grossmann, 5455 W. Burleigh St., Milwaukee, archt. CD 1/25/56.

Ill., Antioch—SCHOOL—BA 6/25—School Dist. 34, 817 Main St., grade school, Loon Lake and Deep Lake Rds. $394,000. Gilbert A. Johnson, American Nat'L Bank Bldg., Rockford, archts. CD 1/21.

Wis., Grafton—SCHOOL—BA 7/2—Jefferson Joint School Dist. 1, high school. $700,000. Plans deposit $40. Darby-Bogner & Assocs., 8801 W. National Ave., West Allis, Zone 14, archts. CD 1/31.

BUILDINGS—SLC

Ill., Chicago—WAREHOUSE—Rubank, Inc., 5544 W. Armstrong Ave., soon lets contract 1 story brick, 15,000 sq. ft. warehouse addn. $100,000. A. Epstein & Sons, Inc., 2011 W. Pershing Rd., archt.

Ill., Wilmette—SAVINGS AND LOAN—First Federal Savings & Loan Assn., 1151 Wilmette Ave., soon lets contract 2 story brick savings and loan bldg., Greenbay and Central. $500,000. Chicago Bank Equip. Co., Inc., 4711 N. Clark St., Chicago, archt. CD 12/31.

Ind., Madison—HOSPITAL—Kings Daughters Hospital, Madison, soon lets contract 3-4 story present hospital addn. $900,000. D. A. Bohlen, 930 State Life Bldg. Indianapolis, archt. Fennig & Weir, 811 Broad Ripple St., Indianapolis, engrs. CD 4/12/56.

HEAVY CONSTRUCTION—LB & CA

OHIO—Dpt. Hys., Columbus, Zone 15, Rejected bid May 14, LB $207,865. Type T-35 on B-119, b.conc. on a crushed aggreg. paving 1.281 mi. Somers and Gratis Twps., S.R. 725, Sections (11.94) (12.46) (14.35), Preble Co. CD 5/23, under LB.

▲ **OHIO**—Dpt. Hys., Columbus, Zone 15, Ohio—**Burch Constr. Co.**, 2445 Neff Rd., Dayton, Ohio, CA $548,370, paving in part with b.conc. surf. on crushed aggreg. base and wid'n. and resuarf. in part with b.conc. 6.075 mi. S.R. 71, Sections 0.00, 16.96, Bethal Twp., Clark and Miami Counties;

Ohio—**Soda & Luscher Constr. Co., Inc.**, 1345 Warren Ave., Niles, O., CA $557,965, paving in part with b.conc. on crushed aggregate base and resurf. in part with b.conc. 7.697 mi. S.R. 84, Sections (20.43-23.-71) (25.75) (25.96), S-39 (2), Kingsville, Sheffield and Monroe Twps., Ashtabula Co. Bids May 14. CD 5/23, under LB.

▲ **O. R. Burden Constr. Corp.**, 6702 E. 21 St., Tulsa, Okla., CA Est. $2,720,000. 28 mi. 24 in. pipe line running from near Sugar Grove in Fairfield Co. to near Homer in Licking Co., OHIO. Ohio Fuel Gas Co., 109 N. Front St., Columbus, O.

R. S. Ursprung & Co., Hanna Bldg., Annex, Cleveland 14, O., CA est. $155,000. 280 ft. concrete, steel STADIUM, 35 ft. high. BEREA, O. Bd. Trustees, Baldwin-Wallace College, Berea, O. CD 6/3.

City of Cleveland Heights, 2953 Mayfield Rd., Zone 18.0, cancelled bids to have been opened May 24, sewers in Thorne Rd., Woodridge St., Rosedale Rd., Castleton Rd., and Northvale Glynn and Gaylor Sts., CLEVELAND HEIGHTS, O. $581,900. Will re-advertise. CD 5/14.

† **Geo. W. Timmons**, 7211 New Germany Rd., Dayton 3, O., LB $153,901 est. $130,110 (3 bidders) power bldg. and pump house, communications, General Wright Patterson Air Force Base, ENG-15-029-57-81, DAYTON, O. U. S. Eng., P.O. Box 59, Louisville 1, Ky. Bids May 28. CD 4/29.

James I. Barnes Constr. Co., 131 N. Ludlow St., Dayton, O., CA Est. $200,000. 800-car drive-in theater near corner Leffel Lane and Limestone St., 16-acre site, SPRINGFIELD, O. Chakeres Theaters, 19 S. Fountain St., Springfield, O. Zeller & Hunter, 709 E. High St., Springfield, O., archts.

▲ **A. Bentley & Sons, Inc.**, 201 Belmont St., Toledo, O., LB $3,082,625 (4 bidders) Sect. 1, general contract, secondary sewage treatment plant imprvs.; LB $322,000. (2 bidders) Sect. 2, electrical work, TOLEDO, O. City, H. G. Rebensal comr. Purchases, Safety Bldg., Toledo, O. Bids May 28. CD 4/23.

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Churchill Constr. Co., 600 Block N. Sugar St., Lima, O., CA $110,465 street imprvs., WAPAKONETA, O. City, City Hall, Wapakoneta, O. CD 11/9.

Advance Asphalt Paving Co., 2417 Woodhill Rd., Cleveland 4, O., LB est. $80,000, 247,000 sq. ft. parking lot to serve both Musicarnival and Thistledown Race Track, WARRENSVILLE HEIGHTS, O. Clevelanc Raceways, Inc., 18509 Miles Rd., Cleveland 28, O., and Musicarnival, 4401 Warrensville Center Rd., Cleveland, O.

▲ INDIANA—State Hy. Dpt., John Peters, chn., State House Annex, Indianapolis. Bids opened 5/28,

Ind.—R. L. Schutt Co., Inc., 1915 N. Meridian, Indianapolis, LB $259,677, Est. $296,011 (6 bidders), 8 spans, 32 ft., four 69 ft., two 57 ft. 6 in., 32 ft. reinf.-con. girder and cont. steel beam bridge over Big Vermillion River, 0.7 mi. north of State Rd. 234, inc. 0.064 mi. approach grading and rein. con. pavement, Contr. No. 4146, F-306 (2) Vermillion Co.; LB $161,407, est. $180,530 (4 bidders), 3 spans, two 42 ft. 6 in., 51 ft. and cont. steel beam bridge over Mutton Creek, 0.8 mi. east of U. S. Road 31, F-150 (2), also 3 spans 30 ft., 42 ft. and 30 ft. cont. rein.-con. slab over Storm Creek, F-150 (2), Contr. No. 4147, Jackson Co.;

Ind.—J. S. Sweet, Cambridge City, Ind., LB $194,789, est. $235,174 (6 bidders) 3 spans, 27 ft., 36 ft. and 27 ft., cont. rein.-con. slab over W. Fork of Whitewater River, east edge of Hagerstown, incl. 0.115 mi. approach grading and c.conc. pavement, S-81 (6), also 32 ft., two 40 ft. and 32 ft. rein.-con. girder over west Fork of Whitewater River overflow, 0.2 mi. east of Hagerstown, incl. 0.089 mi. approach grading and c.conc. pavement, S-81 (6), Contr. No. 4149, Wayne Co.; LB $107,081, est. $121,415 (6 bidders), 3 spans, 50 ft., 60 ft. and 50 ft. cont. steel beam bridge over Martindale Creek, incl. 0.036 mi. approach grading and c.conc. pavement, Contr. No. 4150 S-81 (7), Wayne Co.;

Ind.—Winslow Constr. Co., Salem, Ind., LB $89,965, est. $105,882 (4 bidders); 3 spans, 28 ft. 9½ in., 38 ft. 5 in., 28 ft. 9½ in. cont. rein.-con. slab (abutment extension) over Six Mile Creek, 5.4 mi. east of U. S. Road 31, incl. $173 mi. grading and comp. aggreg. base with 20 ft. b. conc. surf. on relocated Public Road, Contr. No. 4148 F-150 (3), Jennings Co.;

Ind.—Harold Tharp & Son, Fountain City, Ind., LB $124,923, est. $145,109 (4 bidders), 3 spans, 60 ft., 72 ft. and 60 ft. cont. steel beam bridge over Greens Fork Creek, at west edge of Greensfork, incl. 0.043 mi. approach grading and c.conc. pavement, Contr. No. 4151 S-81 (8), Wayne Co.;

Ind.—Mitchell & Stark Constr. Co., Medora, Ind., LB $192,236, est. $204,984, (1 bidder), one 25 ft. rein.-con. arch underfill over Pressburg Creek in Madison, 0.2 mi. south of SR 107, incl. 0.511 mi. approach grading and c. conc. pavement F-164 (2), also 24 ft. rein.-con. girder substructure extension over Clifty Creek, 1.4 mi. north of S.R. 107 in Madison, incl. 0.004 mi. approach grading and bit. coated aggreg. binder with bit. coated aggreg. surf. F-164(2), Contr. No. 4134, Jefferson Co. CD 5/16.

H. H. Hall Constr. Co., 211 S. 15 St., East St. Louis, Ill., LB $112,563, est. $100,000 (3 bidders), rein.-conc. bridge to carry Summit Ave. extension across Harding Ditch of East Side Levee & Sanitary District, EAST ST. LOUIS, ILL. City, Alvin G. Fields, mayor, City, City Hall, East St. Louis, Ill. Bids May 22. CD 5/1/57.

Blake Barnard Corp., 10918 S. Western Ave., Chicago 43, Ill., CA $88,400, Naval Air Station bldg. reconstr. GLENVIEW, ILL. P. Wks. Office, Ninth Naval Dist., Great Lakes Naval Training Center, Great Lakes, Ill. Bids Apr. 26. CD 4/11.

† Gilbert-Hodgman Inc., 1625 W. 75th Place, Chicago 20, Ill., LB $205,144 (5 bidders), electrical distr. sys., Bldg. 1, HINES, ILL. Veterans Admin., Munitions Bldg., Wash., D. C. Bids May 28. CD 4/3.

Standard Paving Co., 308 W. Washington St., Chicago, Ill., CA $575,469, b. conc. paving, Sec. 8-cs, RIVER GROVE, ILL. Village, Village Hall, River Grove, Ill. CD 5/20, under LB.

H. Turner & Son, Boscobel, Wis., CA $75,109, firing-in-butt facilities, b. conc. taxiways, rein.-con. target structure, resurf. road, b. conc. roads, ENG-11-032-57-82, CAMP WILLIAMS, WIS. U. S. Eng., 475 Merchandising Mart, Chicago 54, Ill. CD 4/24/57.

Milwaukee Boiler Mfg. Co., 1101 S. 41 St., Milwaukee, Wis., LB $90,965 (1 bidder) 2 sewage dryers, MILWAUKEE, WIS. Sewerage Comn. of the City of Milwaukee, Jones Island, Milwaukee, Wis. Raymond D. Leary, ch. engr. Bids May 27. CD 5/8.

La Crosse Dredging Corp., 310 S. Michigan Ave., Chicago, Ill., LB $106,995 (10 bidders) N. 92 St. Underpass, WAUWATOSA, WIS. Chicago, Milwaukee, St. Paul & Pacific Ry. Co., W. G. Powrie, ch. engr., Union Station, Chicago 6, Ill.

Durand Constr. Co., Spooner, Wis., LB $208,052, sewage treatment plant, sanitary sewers and lift station, WESTFIELD, WIS. Village, Village Hall, Westfield, Wis. Bids May 23. CD 5/1.

▲ MICHIGAN—State Hy. Dpt., Charles M. Ziegler, Comr., Stevens T. Mason Bldg., Lansing, Bids opened 5/23,

American Bridge Div. U. S. Steel Corp., 9-255 General Motors Bldg., Detroit, Mich., LB $5,933,888, est. $5,700,000, (6 bidders), structural steel, machinery for double deck vertical lift bridge on M-26 and US-41, Copper Range R. R. and Duluth, South Shore and Atlantic R. R. over Portage Lake, U. B1 of 31-10-1 C4-U (U 175 22) 31051, Houghton Co. CD 4/22.

▲ MICHIGAN—State, Charles M. Ziegler, hy. Comr., Stevens T. Mason Bldg., Lansing,

Mich.—R. C. Mahon Co., 6565 E. 8-Mile Rd., Detroit, Mich., CA $1,105,060, est. $1,220,000, 6,590,000 lb. structural steel for 4 bridges on Northwestern Way Extension, BM B2 of 63-8-3 C1-R and B1 (2) BM B1 B2 B3 B4 of 63-5-3 BM B2 B3 B5 B6 X1 of 63-24-3 (6) BM B-1 B2 of 63-6-3, Oakland Co.;

Mich.—Bethlehem Steel Co., Bethlehem, Pa., CA $30,575, est. $30,000, 210,860 lb. structural steel for State Hy. Bridge on relocation of US-127, 2.75 mi. southeast of Jackson, M B 6 of 38-7-13 C1-RN, Jackson Co. Bids Mar. 19. CD 3/8.

▲ MICHIGAN—State, Charles M. Ziegler, h. Comr., Stevens T. Mason Bldg., Lansing, Bids opened May 15,

Mich.—Thornton Constr. Co., 1028 Ethel, Hancock, Mich., LB $438,949, est. $440,000, 19.324 mi. 24 ft. b. conc. US-2 from Brevort northwesterly to Naubinway M 49022 C1-R M 49023 03-R, Mackinac Co.; LB $299,771, est. $140,000, 10.415 mi. b. conc. Class 1 M-28 and M-221, F 17063 C1-R (F 189 24) M 17051, Chippewa Co.; LB $426,643, est. $440,000, 10.05 mi. b. conc. various sections US-2 US-8 US-141 and US-141, M 22011 C1-U M 22011 C2-U M 22021 C1-R M 22022 C1-U M 22023 C1 M 22023 C2-R M 22031 C1-R M 22051 C1-R, Dickinson Co.;

Mich.—Proksch Constr. Co., Iron River, Mich., LB $317,807, est. $320,000, 25-ft aggreg. base course with prime and double seal 4.417 mi. M-123 from north boundary of Marquette National Forest, M 17011 C1-R, Chippewa Co.;

Mich.—East Shore Asphalt Paving Co., Alpena, Mich., LB $139,951, est. $140,000, bit. aggreg. surf. course 8.251 mi. M-149 and M-94, M 75011 C2-R US 75031 C1-U US 774 (2) US 75031 C2-U (US 420 8) S 75031 C3-R (S-420 7), Schoolcraft Co.;

Mich.—Payne & Dolan of Wisconsin, 735 N. Water, Milwaukee, Wis., LB $229,348, est. $220,000, b. conc., Class 1, 7.675 mi. US-2 from Cook's Run River east and south east to 6.5 mi. northwest of Iron River, M 36021 C2-R, Iron Co.;

Mich.—Bacco Constr. Co., Iron Mountain, Mich., LB $126,018, est. $120,000, aggreg. wid'n. b. conc., curb and gutter 0.73 of 1 mi. US-2 and US-41, F 55012 C1 (F 173 19) R 55022-C1-U (F 136 16) M 55021 C1-U, Menominee Co.;

Mich.—I. L. Whitehead Co., Sault Ste. Marie, Mich., LB $103,361, est. $100,000, 3.939 mi. grading, drainage structures and 21 ft. aggreg. surf. course 4.01 mi. FAS Rte 341 from M-129 east, CS 17-70 C1 (S 877 1), Chippewa Co.;

Mich.—Mid America Eng. Corp., Skokie, Ill., LB $259,653, est. $260,000, 8.209 mi. 27-ft. b. conc. US-41 from 4.5 mi. southeast of M-94 southeast, F 52043 C1-R (F 17 4 26) F 02011 C1-R (F 174 26), Marquette and Alger Counties. CD 4/26.

MICHIGAN—State, Director Purchases, Lewis Cass Bldg., Lansing,

Mich.—Fort Pitt Bridge Works, Sherwyn Hotel, Pittsburgh, Pa., CA $259,032, est. $390,000 1,580,700 lb. structural steel and 530 lb. bronze expansion plate for bridge on First St. over John C. Lodge Expressway, Proj. BI 873 of 82-22-12 C1-U0 (1 07-1 14) (82111), Wayne Co.;

(Continued on page 134)

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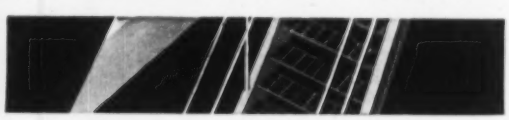

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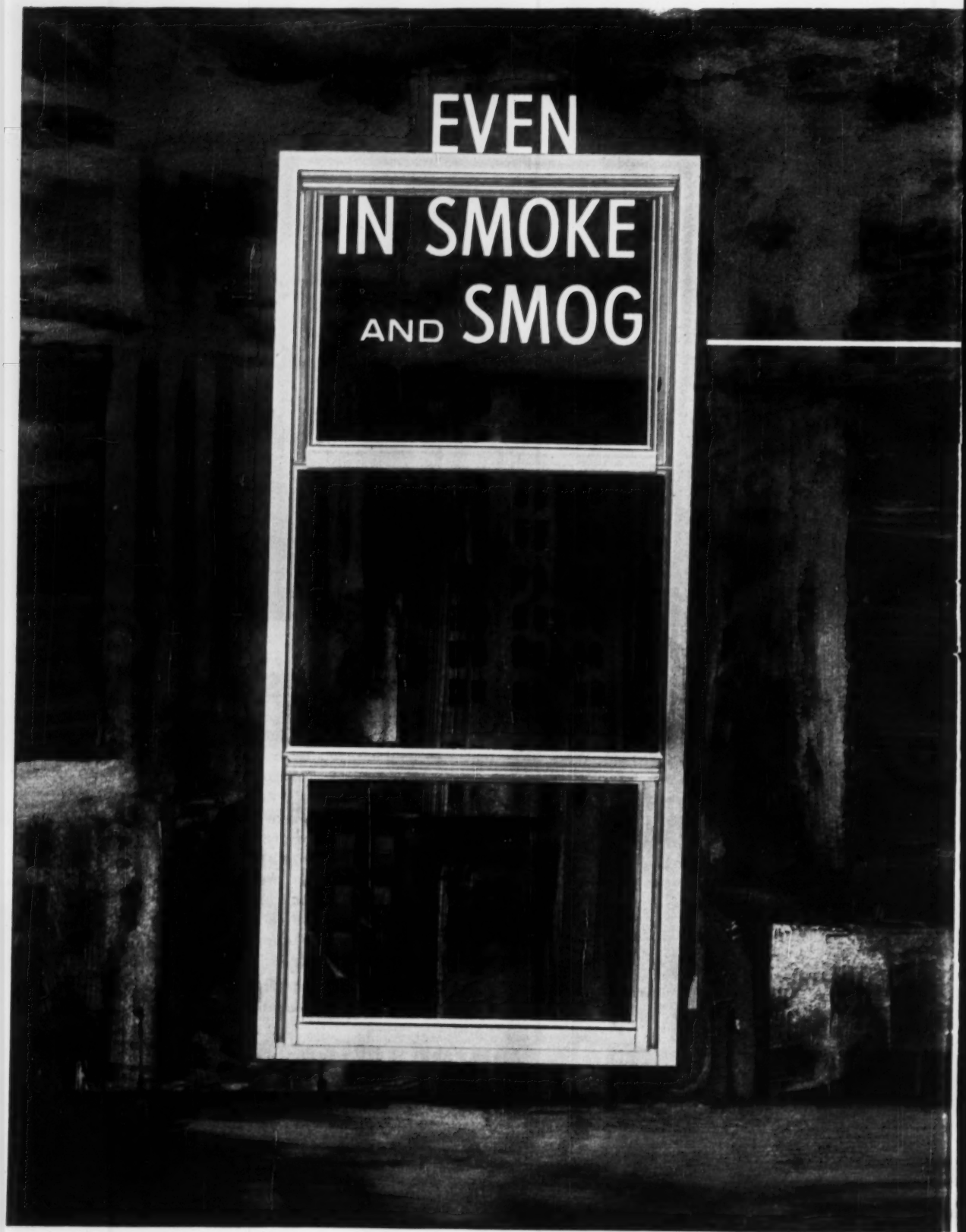
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McGRAW-HILL PUBLICATIONS

(Continued from page 130)

Mich.—**Bethlehem Steel Co.**, Bethlehem, Pa., CA **$84,930,** 570,000 lb. structural steel for bridge on relocation of US-127 over N. Y. C. RR 2.5 mi. southeast of Jackson, Proj. M XI of 38-7-13 C1-RN 38111, Jackson Co. Bids Mar. 7. CD 3/15.

▲ **MICHIGAN**—State Hy. Dpt., Charles M. Ziegler, hy. comr., Stevens T. Mason Bldg., Lansing, Bids opened 5/22,

Mich.—**Carl Goodwin & Sons**, Alpena, Mich., LB **$244,181,** est. $280,000 (17 bidders), aggreg. base course with prime and double seal 4.377 mi. on M-115 east Allegan. Proj. S 0304, C1-R (S 745 4), Allegan Co.;

Mich.—**Denton Constr. Co.**, 20415 Mack Ave., Grosse Pointe, Mich., LB **$849,255,** est. $900,000, (19 bidders), c. conc. base widening, c. conc. pavt. and b. conc. surf. 3.965 mi. M-43 for 4-lane divided hy. from Grand Lodge to Canal Road, F 23042 C2-R (F 437 1), Eaton Co.;

Mich.—**S. D. Solomon & Sons**, 3760 Elizabeth Lake Rd., Pontiac, Mich., LB **$678,214,** est. $300,000, (18 bidders), aggreg. base course and prime and double seal 5.554 mi. relocation of M-92 from US 112 to present M-92, F 810 C1-R (F 211 6) F 4604 C1-R (F 211 6), Washtenaw and Lenawee Counties;

Mich.—**Losella Constr. Co.**, 1555 Goddard, Wyandotte, Mich., LB **$1,220,236,** est. $1,260,000, (18 bidders), grading, draining structures and Dual-24-ft. c. conc. 2.607 mi. US-23 relocation and grade separation structures at East Burt Rd, I 25032 C3-RN (I 07-2 13) I 73171 C2-RN (I 07-2 13) I 73171 C3-Un (I 07-2 13) I B of 73-2-3 C2-RN (I 07-02 19), Saginaw and Genesee Counties; CD 5/9;

Mich.—**The Hicks Co.**, 624 East Superior St., Alma, Mich., LB **$88,030,** est. $100,000 (7 bidders), aggreg. base wid'n. course and 22-ft. bit. aggreg. surf. 5.071 mi. M-30 from M-46 north, M 73011 C1-R, Saginaw Co.;

Mich.—**Charles J. Rogers Inc.**, 14836 Grand River, Detroit, Mich. and **Juston-Kelly Co.**, 13240 Alber, Dearborn, Mich., LB **$346,286,** est. $400,000, (11 bidders), grading, retaining walls, paving Ramp A Expressway roads and certain surf. roads on John C Lodge Expressway between Fort St. Union Station and Second Ave. in Civic Center of Detroit, BI 82111 C7-U0 (I 97-1 13) Wayne Co.; CD 5/3;

Mich.—**The Lewis & Frisinger Co.**, 1110 Harpst St., Ann Arbor, Mich., and **H. C. Singledecker**, Ann Arbor, Mich., LB **$505,496,** est. $540,000, dual c. conc. 1.3 mi. parts M-218 and M-58, also removal bldgs., trees, etc., sewer work, etc., F 63011 C2-R (F 389 3) F 63011 C3-U (F 389 3) F 63052 C1-R (F 131 11) F 63052 C2-U (F 131 11), Oakland Co., CD 5/1;

Mich.—**Denton Constr. Co.**, 20415 Mack Ave., Grosse Pointe, Mich., LB **$2,799,653,** est. $2,820,000 (12 bidders), dual 24-ft. c. conc. 4.871 mi. incl. 3 bridges on Toledo-Detroit Expressway over West, King and Woodruff roads, BI 82191 C-R0 (I 017-1 1) BI 82191 C2-R0 (I 05-1 4)BI B6 and BI B9 of 82-1/2 25 C2-RC (X 017-1 1) Part II BI B11 of 82-1-25 C2-R0 (I 05-1 4), Wayne Co., CD 5/17.

MICHIGAN—State Hy. Dpt., Charles M. Ziegler, hy. comr., Stevens T. Mason Bldg., Lansing, Bids opened 5/22.

Mich.—**E. C. Nolan Co.**, 8121 Warren, Center Line, Mich. and **Jarvick Constr. Co.**, 18285 Littlefield, Detroit, Mich., LB **$153,891** est. $160,000 (6 bidders), rein.-conc. bridge on relocation of M-58 over Clinton River, U-81 of 63-17-2 C1-U (U 131 12), Oakland Co.; LB **$228,360,** est. $240,000 (8 bidders), 2-rein.-con. centilever abutments 12 ft. high on treated timbers and 3 rein.-con. beam and girder piers 28-ft high to road crown for grade separation on Birch Run Road over relocation US-23, I B2 of 75-2-3 C1-UN (I 07-2 21) Saginaw Co.;

Mich.—**K. G. Marks Co.**, Port Huron, Mich., LB **$92,969,** est. $90,000 (4 bidders), rein.-con., steel pedestrian bridge on Hogarth Street over relocation of US-23, I B10 of 25-7-4 C2 I 07-2 6 (25032), Genesee Co.;

Mich.—**L. W. Lamb Co.**, Holland, Mich., LB **$126,939,** est. $150,000 (6 bidders) rein.-conc. and precast prestressed concrete beam bridge, incl. grading and some concrete paving on US-31 over relocated US-31, BM-31 BM B3 of 70-13-6 C1-R0, Ottawa Co. CD 5/9.

S & S Constr. Co., Milford, Mich., LB **$123,321 (A)** sewage treatment plant, pumping station, outfall sewers and water supply, CORUNNA, MICH. City Common Council, Corunna, Mich. Bids May 13 CD 4/16.

† **Port City Heating & Plumbing Co.**, 119 Myrtle Ave., Muskegon, Mich., CA **$106,780,** relocate gate house, insulate gasoline lines, plumbing and heating work, Muskegon Ordnance Plant, Continental Motors Corp., MUSKEGON, MICH. U. S. Eng., 600 E. Jefferson St., Detroit, Mich. Bids May 16, CD 5/8.

BUILDINGS—LB & CA

▲ **National Engineering & Constr. Co.**, 1968 W. 3 St., Cleveland 13, O., CA Total est. **$37,000,000.** general contract, POWER PLANT expansion at Ashtabula Addition, ASHTABULA, O. Cleveland Electric Illuminating Co., 75 Public Sq., Cleveland 13, O., CD 5/17/56;

General Electric Co., River Rd., Schenectady, N. Y., CA generator and turbine for plant expansion (Ashtabula, O.);

Own Forces, will construct power lines and sub-station (Ashtabula, O.).

Gilbane Bldg. Corp., 90 Calverly St., Providence, R. I., CA Est. **$900,000.** 65,891 sq. ft. FACTORY, BARBERTON, O. Babcock & Wilcox Co., Barberton, O. CD 12/8/54.

▲ **H. W. Miller Constr. Co.**, 1511 Neave St., Covington, Ky., LB **$2,229,000** (6 bidders) Longview HOSPITAL addn., CINCINNATI, O. Ohio Dpt. P. Wks., 705 State Depts. Bldg., Columbus, O. Bids May 28. CD 5/1.

Freyn Bros. Inc., 234 Pike St., Bromley, Ky., LB **$640,413,** plumbing, heating and exterior sewers for hospital addn. (Cincinnati, O.).

(Continued on page 137)

"loading . . . hauling . . . dumping . . . you can't beat 'em!"

That's what Mr. Arnold R. Lyon of Harry Berry, Inc. says about their Mack LRX dumpers. As general manager of their operation in Hopkinsville, Kentucky, Mr. Lyon appreciates the dollar-and-sense value of Mack trucks.

"Since ours is mostly short hauling, the strain from loading, dumping, and steep grades really gives our trucks a tough workout. Moreover, we find that we are able to produce more work with our Macks because their balance, short turning radius, and maneuverability speed up spotting under the shovel and dumping.

"Our Macks haul 16- to 17-ton loads day in and day out . . . averaging 2 gallons of fuel per hour. In 3½ months, outside of routine servicing, we have not had a single second of downtime. But aside from the economy and performance, our drivers like them better than other makes . . . easier to handle . . . better riding . . . greater sense of confidence. Certainly, it's been our experience that you can't buy a better truck than a Mack."

Mr. Lyon has learned about Macks from experience. If you have a hauling job, especially a tough one, why not let your Mack dealer or representative tell you about all the satisfied Mack users in your area. Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

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first name for
TRUCKS

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the BIG 3 puts the 2½-yd. LORAIN-85A years ahead!

These 3 big features will mean more to you in profits than anything you can find in any other 2½-yd. shovel-crane. They mean greater operating ease, longer life, increased crane capacities and reduced maintenance. Of course, there are many more features in the Lorain-85A . . . torque converter power-take-off, new "operator designed" cab, full air controls of all crawler operations, removable counterweight, are but a few. The Lorain-85A is years ahead in the important features that will put you 'way ahead in profits.

Be sure you know all about the "85A" . . . your Thew-Lorain Distributor will explain every detail!

THE THEW SHOVEL CO., Lorain, Ohio

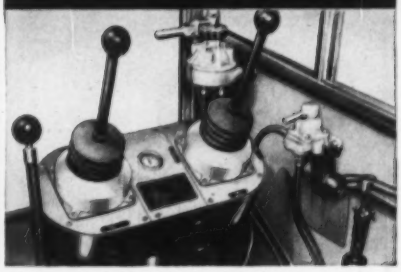
1.

"SHEAR-BALL"* TURNTABLE MOUNTING

Turntable is secured to crawler and revolves easily and freely on a huge "ball bearing." No center pin or nut, centering gudgeon or exposed roller path . . . no turntable rollers . . . no constant adjustment, maintenance or lubrication problems.

2.

2-LEVER, "JOY-STICK" AIR CONTROL



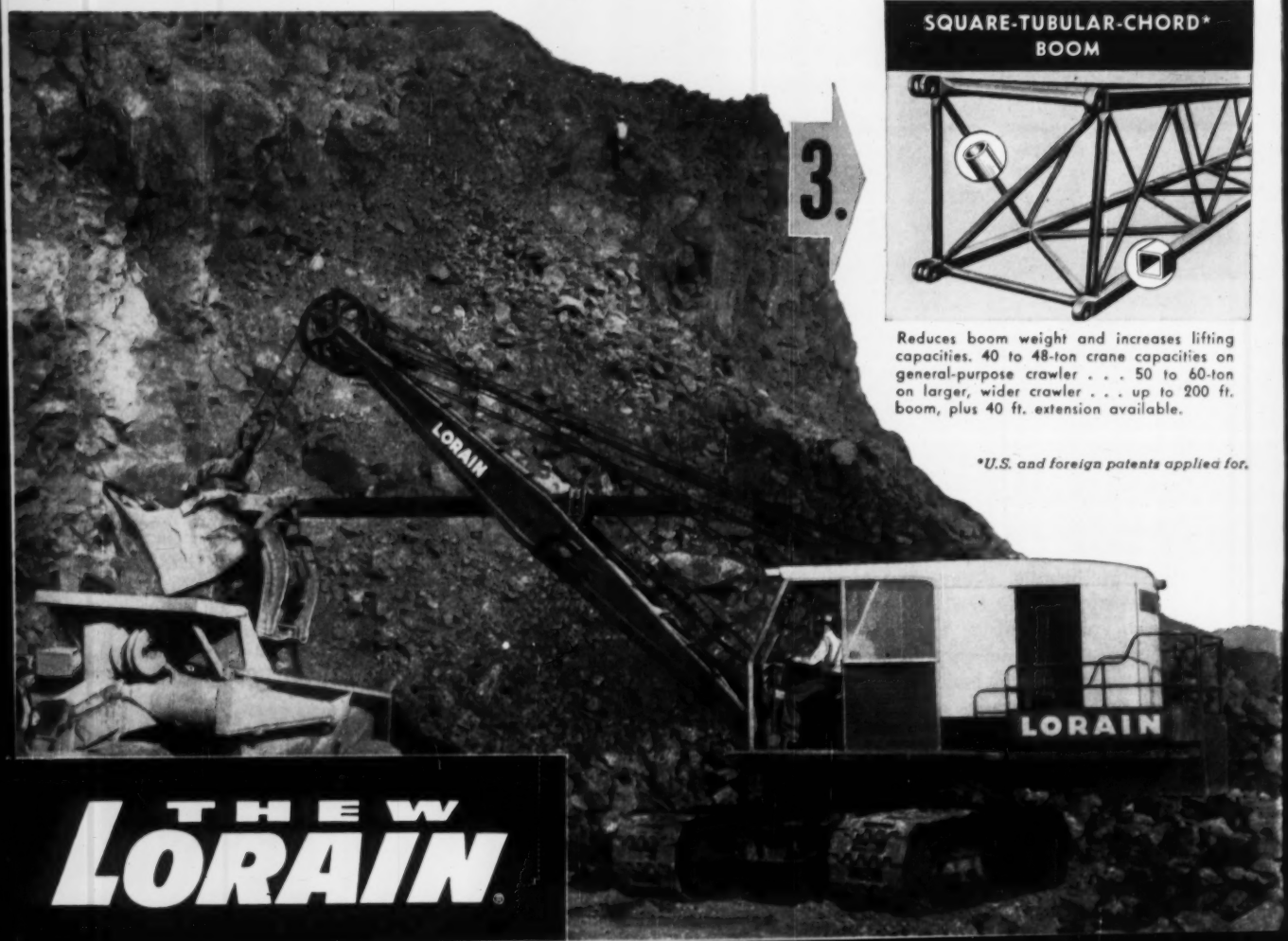
The newest of all shovel-crane power controls. "Metered Air" feeds power to clutches at any rate desired — yet operator retains full "feel" of all operations. Fewer levers, fewer motions, faster, smoother, less effort, less fatigue.

3.

SQUARE-TUBULAR-CHORD* BOOM

Reduces boom weight and increases lifting capacities. 40 to 48-ton crane capacities on general-purpose crawler . . . 50 to 60-ton on larger, wider crawler . . . up to 200 ft. boom, plus 40 ft. extension available.

*U.S. and foreign patents applied for.



THEW LORAIN®

(Continued from page 134)

The Knowlton Co., 1459 King St., Columbus, O., CA **$459,300**, Central FOOD SERVICE BLDG., Columbus State School, COLUMBUS, O. State Dpt. P. Wks., State Depts. Bldg., Columbus, O. CD 5/3/56.

▲ **Huber, Hunt & Nicholas, Inc.**, 2450 Stibbs St., Indianapolis, Ind. CA Total est. **$100,000,000**. FACTORY to mfr. earth moving and road building machinery, south of HUDSON, O. Euclid Road Machinery Div., General Motors Corp., 1316 Chardon Rd., Cleveland, O. CD 9/5.

▲ **Eugenia Building Co.**, Anthony Fortunato, pres., Madison, O. Own Forces, **$1,500,000**. 110 ranch-style HOMES north of Lake Rd. near Lake Erie, MADISON-ON-THE-LAKE, O.

▲ **Vernon Barnhill**, 2199 Mansfield-Lucas Rd., Mansfield, O. Own Forces, **$1,000,000-$2,000,000**. 130 HOMES, 70-acre tract on Mansfield-Lucas Rd., MANSFIELD, O.

Weithman Bros., Galion, O., CA **$358,888** (9 bidders) general contract HIGH SCHOOL, MARION, O. Ridgedale Local School Dist., Route 4, Marion, O. Bids May 22. Awarded May 22. CD 4/30.

Weithman Bros. Co., Galion, O., LB **$517,800**. general contract, RECEPTION and INTENSIVE THERAPY UNIT at Giffin State Hospital for Dpt. Mental Health & Hygiene, TIFFIN, O. Ohio Dpt. P. Wks., 705 State Depts. Bldg., Columbus, O. Bids May 24. CD 4/30.

▲ **Huber, Hunt & Nichols, Inc.**, 2450 S. Tibbs St., Indianapolis, Ind., CA Est. **$2,000,000**. 2 story, 200x500 ft., FACTORY, with separate POWERPLANT adjoining present TV plant, INDIANAPOLIS, IND. Radio Corp. of America, 600 N. Sherman St., Indianapolis, Ind. CD 5/22.

▲ **Hasbrook Constr. Co.**, Arlington Heights, Ill., Own Forces. **$10,000,000**, 500 HOMES on 180 acres, south side of Palatine Rd. between State and Wilke Rd., ARLINGTON HEIGHTS, ILL.

Lee Constr. Co., 127 N. Dearborn St., Chicago, Ill., CA **$478,381**, 2 story John Joseph Pershing ELEMENTARY SCHOOL, 31st and Cottage Grove, CHICAGO, ILL. Chicago Bd. Educ. 228 N. LaSalle St., Chicago, Ill. CD 5/23, under LB.

▲ **Sumner Sollitt Co.**, 307 N. Michigan Ave., Chicago, Ill., CA **$2,555,000**, 19 story brick APARTMENT, 2920 S. Vernon, CHICAGO, ILL. Draper & Kramer, Inc., 33 W. Washington Blvd., Chicago, Ill. Loebl Schlossman & Bennett, 430 N. Michigan Ave., Chicago, Ill., archts.

Fred Teitlebaum Constr. Co., 5526 N. Kedzie Ave., Chicago, Ill., CA **$600,000**, 1 story, brick, 78,000 sq. ft. WAREHOUSE, Canal and Taylor Sts., CHICAGO, ILL. Florsheim Shoe Co., 130 S. Canal St., Chicago, Ill. CD 4/11.

Young & Sons Constr. Co., Inc., 1244 E. 79th St., Chicago, Ill., CA **$720,193**, 2 story, brick Beale Elementary SCHOOL, 6043 S. Sangamon St., CHICAGO, ILL. Bd. Educ., 228 N. LaSalle St., Chicago, Ill. CD 5/20, under LB.

S. M. Wilson & Co., 1616 Cleveland Ave., Granite City, Ill., CA **$562,908**, general contract HIGH SCHOOL, PANA, ILL. Pana School Dist. No. 8, V. R. Wheatley, supt. Schools, Pana, Ill. Bids May 6. CD 4/2.

Hunzinger Constr. Co., 4577 N. 124 St., Milwaukee, Wis., CA Est. **$344,000**, general contract 1 and 2 story, 275x300, 1st unit of Mayfair SHOPPING CENTER, WAUWATOSA, WIS. Froedert Enterprises, 735 N. Water St., Milwaukee, Wis. P. Akwa, c/o owner, engr. Bids May 13. CD 5/7.

▲ **A. Z. Shimina & Son Co.**, 122 North 4th Ave., Ann Arbor, Mich., CA **$1,525,000**, general contract, Proj. No. 50, MUSIC BLDG., University of Michigan, ANN ARBOR, MICH. Regents of the University of Michigan. W. K. Pierpont, vice pres., Plant Service Bldg., North University and Forest Ave., Ann Arbor, Mich. Bids Apr. 25, CD 5/10, under LB;
Farrington Co., 15100 Castleton St., Detroit, Mich. CA **$525,000**, mechanical work for music bldg., (Ann Arbor, Mich.).

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich., CA Est. **$1,000,000**, 4 story Home for Aged addn., DETROIT, MICH. Arnold Home for the Aged, West Seven Mile Rd., Detroit, Mich. CD 5/14.

Coon-DeVisser Co., 2051 West Lafayette St., Detroit, Mich. Owner Builds, **$270,000**, power plant equip., WAREHOUSE AND OFFICE BLDG. addn., DETROIT, MICH.

Summit Constr. Co., Lansing, Mich., CA **$759,000**, general contract. NURSERY BLDG., Mt. Pleasant State Home & Training School, MOUNT PLEASANT, MICH. State, A. N. Languis, dir. State Bldg. Dpt., Lewis Cass, Bldg., Lansing, Mich. Bids Apr. 25. CD 5/10, under LB.

Milgron Bldg. Co., St. Clair Shores, Mich. Owner Builds. **$600,000**, 11 buildings for 76 families, multiple DWELLING UNITS, ROYAL OAK, MICH.

▲ **W. E. Wood Co.**, 4649 Humbolt St., Detroit, Mich., CA Est. **$3,500,000**, SEMINARY, incl. chapel, dormitory, classrooms, maintenance shop, power house, WATERFORD, MICH. Colombiere College, Detroit Province of the Society of Jesus, c/o Diehl & Diehl, archts., 210 Madison St., Detroit 26, Mich. CD 10/19.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

Minn., Bemidji—BA 6/17—Beltrami Co., A. D. Johnson, aud., grading, grav. surf. and Bridge No. 7199, 7.2 mi. between CAR 3, north of Saum and TH 72, 4.0 mi. west of Kelliher, and Bridge No. 7199, 31 ft. precast conc. channel span bridge with timber abutments, S.P. 04-516-01 (SAR 16), Minnesota Proj. S 6661 (2). Plans deposit $3.25. grading, road-mixed bit. base and road-mixed bit. surf. 5.0 mi. between CAR 52, 3.0 mi. north of Bemidji, and CAR 35, S.P. 04-609-01 (SAR 14), Minnesota Proj. S 6664, (3); 0.8 mi. between State Aid Parkway 1 and CAR 52, 3 mi. north of Bemidji, S.P. 04-613-01 (SAR 14), Minnesota Proj. S 6663, (1). Plans deposit $1.80; grading, sand-gravel sub-base, gravel base and road-mixed bit. surf., 4.3 mi. between 9.2 mi. north of north limits of Bemidji and 13.5 mi. north of the north limit of Bemidji, S.P. 04-614-01 (SAR 18), Minnesota Proj. S 6662 (1). Plans deposit $2.15. $73,000 each. G. H. Wellner, co. hy. engr.

Minn., Rochester—BA 6/17—Olmsted Co., Frances L. Underleak, aud., grading, concrete box culvert exten. and crushed rock surf., 2.0 mi. between west line of Olmsted Co. and SAR 3, 2.0 mi. north of Rock Dell, S.P. 55-511-02 (SAR 17), Minnesota Proj. S 6223 (1). $73,000. Plans deposit $1.10. G. J. Sullivan, co. hy. engr.

Minn., Benson—BA 6/18—Swift Co., A. E. Nelson, aud., grading, concrete curb and gutter, grav. wearing course, sand-grav. sub-base, grav. base and road-mixed bit. surf. 3.7 mi. between 2.2 mi. south of HT 12 in DeGraff and 1.4 mi. North of TH 12 in DeGraff, S.P. 76-611-01 (SAR 10), Minnesota Proj. S 6405 (2). $73,000. Plans deposit $1.45. S. A. Ransmussen, co. hy. engr.

Minn., Pine City—BA 6/18—Pine Co., O. W. Anderson, aud., grade, sand-gravel sub-base, gravel base and road-mixed bit. base, 4.5 mi. between CAR 10, 1.5 mi. east of Pine City and CAR 9, S.P. 58-603-04 (SAR 1), Minnesota Proj. S 6533 (4). Plans deposit $1.25; sand-gravel sub-base, gravel base & road-mixed bit. base 5.4 mi. between the west limits of Hinckley and west line of Pine Co., S.P. 58-503-03 (SAR 3) Minnesota Proj. S 6530 (2). Plans deposit 50c; gravel base and road-mixed bit. base, 1.8 mi. between 0.25 mi. east of TH 61 at Beroun to 2.0 mi. east of TH 61, S.P. 58-604-01 (SAR 2), Minnesota Proj. S 6534 (4). Plans deposit 50c; road-mixed bit. surf. 3.0 mi. between Jct. TH 61 in Willow River and 3.0 mi. southeast, S.P. 58-609-03 (SAR 11), Minnesota Proj. S 6539 (5). Plans deposit 50c; 3 mi. between TH 123, 3 mi. east of Sandstorne and CAR 18, S.P. 58-611-01 (SAR 8), Minnesota Proj. S 6541 (3). Plans deposit 70c; bit. seal coat 1.8 mi. between Jct. ASR 1 in Pine City and 1.8 mi. northeast, S.P. 58-604-02 (SAR 2) Minnesota Proj. S 6534 (5). Plans deposit 50c. $100,000. William Jones, co. hy. engr.

Minn., Wasena—BA 6/18—Wasena Co., R. R. Rytl, aud., grading 9.6 mi. between SAR 1 at Central and SAR 7, 4.0 mi. south of Nimrod, S.P. 80-505-03

For greater performance . . . lower costs . . . day in and day out . . . it's

Dollar for dollar—feature for feature—CMC construction equipment is your BEST buy! It's backed by close to half a century of manufacturing experience and know how. If you're looking for BIGGER PROFITS — then you're looking for CMC! CONSTRUCTION MACHINERY COMPANY, Waterloo, Iowa.

CMC TRANSCRETES mix and handle any slump concrete better and faster, on any kind of job. Write for new TRANSCRETE BULLETIN.

CMC's large variety of types and sizes of pumps — assure lower cost water handling on any construction job! At left, 10" Dual Primer; at right, SKWEE-GEE diaphragm.

A COMPLETE LINE OF AMERICA'S FINEST

- **TRUCK MIXERS** 4 to 7-yard mixing capacities
- **BUILDING MIXERS** from 3½S to 16S
- **CENTRAL PLANT MIXERS**—from 16S to 84S
- **PLASTER AND MORTAR MIXERS** from 3½ to 12 cubic feet
- **PUMPS**—Dual Primers from 1" to 10", diaphragms, others.
- **HOISTS**— Many models. Single, multiple drums to 45 H.P.

(SAR 2), Minnesota Proj. S 6482 (3). Plans deposit $2.15. $90,000. C. Nelson, co. hy. engr.

† **Minnesota**—GAP FILLER FACILITIES—BA 6/19—U. S. Eng., 1217 U. S. Post Office & Custom House, St. Paul, Zone 1, gap filler facilities Elbo Lake and Middle River, Serial No. ENG-21-01857-10. CD 5/28.

† **Missouri and Arkansas**—BA 6/20—U. S. Eng., P. O. 97, Memphis, Tenn., pile dike, Island 20, Missouri, and Redman Point, Arkansas, Civ. Eng-40-041-57-193.

† **S. D., Rapid City**—LAUNCHER, etc.—BA 6/20—U. S. Eng., 1709 Jackson St., Omaha, Neb., temporary launcher and athletic courts-NIKE-Ellsworth Air Force Base, ENG-57-105. CD 10/26/55.

† **Mo., St. Louis**—COMMERCIAL AND STANDBY POWER TO ARTCC—BA 6/21—Civil Aeronautics Admin., Federal Office Bldg., Kansas City, Mo., commercial and standby power to ARTCC, Lambert Field, No. 3-57-120.

† **Kansas**—AC & W STATION—BA On Or About 6/25—U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo., modification AC&W Station, Olathe, ENG-23-028-57-96.

† **Minn., Duluth**—AIRCRAFT SHELTER—BA About 6/25—U. S. Eng., 1217 Post Office & Custom House, St. Paul, Zone 1, ready aircraft shelter, Duluth Air Force Base, ENG-21-018-57-24. CD 8/23.

Minn., Brooklyn Center—BA 6/25—Village, H. R. Jones, clk, 14,910 ft. 6 and 8 in. vitr clay pipe, 46 manholes, 1 factory built lift station, plus appurtenances, 10,465 ft. 4- to 16-in. c.i. pipe, 15 hydrants and valves, thirteen 4- to 16-in. valves, 4,335 ft. 1 in. copper tubing. $230,000. Minder Eng. Co., 6418 Fifty 6th Ave. N. Minneapolis, engr.

† **N. D., Minot**—UTILITIES, etc.—BA 6/26—U. S. Eng., 1709 Jackson St., Omaha, Neb., utilities and buildings, Phase III, Minot Air Force Base, Inv. 25-066-57-115. CD 8/20.

† **Okla., Oklahoma City**—UTILITIES, etc.—BA 6/26—U. S. Eng., Box 61, Tulsa, Zone 2, utilities, roads and streets for 640-acre development, Tinker Air Force Base, $500,000-$1,000,000. Extended date. CD 5/31.

† **Tex., El Paso**—BA 6/27—U. S. Eng., Box 1538, Albuquerque, N. M., 5.6 mi. access road, 24 ft. wide with hot-mix surf., ENG-29-005-57-62, Fort Bliss, CD 8/21.

† **New Mexico**—BA 7/9—Bureau Reclamation, Dpt. Interior, Albuquerque, earthwork, clearing, structures, for irrigation rehabilitation, Belen Unit 3, Middle Rio Grande Project, Valencia Co. DC-4922; adv ENR 6/13.

BUILDINGS—BA

Minn., East Grand Forks—SCHOOL—BA 6/19—Bd. Educ., K. P. B. Reishus, supt. Schools, elementary school. $375,000. Plans deposit $25. Grosz & Anderson, Grand Forks, N. D., archt. CD 7/20.

Minn., Roseville—SCHOOL—BA 6/20—Bd. Educ., Independent School Dist. No. 3, T. Schultz, clk., Brimhall Elementary School, $500,000. Plans deposit $25. Magney Tusler & Setter, 303 Roanoke Bldg., Minneapolis, archts. CD 5/8.

Tex., Houston—MEMORIAL CENTER, etc.—BA 6/25—Rice Institute, 6100 Main St., memorial center and chapel, $800,000. Plans deposit $50. Harvin C. Moore, 2006 W. Alabama Ave., archt. Walter P. Moore, 2 Pinedale, James H. Howard & Assocs., 4101 San Jacinto St., engrs. CD 11/16/55.

▲ **Minn., Willmar**—SERVICE BLDG.—BA 6/26—State, Dpt. Admin., P. T. Peterson dir. Purchases, 19 State Capital, St. Paul, new service bldg., Willmar State Hospital, $1,000,000. Plans deposit $40. Mannel & Green, 19321/2 University Ave., St. Paul, archts. CD 10/31/56, under LB.

Minn., Cannon Falls—HOSPITAL, etc.—BA 6/27—City, G. F. Conley, clk., municipal hospital and nursing home. $350,000. Plans deposit $35. Fasth, Hillstrom & Horty, Inc., 910 Midland, National Bank, Minneapolis, archt.

▲ **Wyo., Thermopolis**—HOSPITAL—BA 6/27—Hot Springs County Hospital, Court House, 1 story, part bsmnt., cross-shaped, 35,000 sq. ft. Hospital area and 20,000 sq. ft. rehabilitation center, $1,540,000. Fisher, Fisher & Davis, 827 Denver National Bldg., Denver, Colo., engrs.-archts. CD 2/28.

BUILDINGS—SLC

Colo., Boulder—HOSPITAL, etc.—Boulder Community Hospital, Boulder, soon lets contract Community Hospital remodeling, addn. $437,192. R. Ewing Stiffler, 818 12 St., Denver, engr.-archt. CD 6/26/56.

▲ **Iowa, Des Moines**—Y.M.C.A.—Young Men's Christian Assn., 9 and High Sts., soon lets contract, YMCA Bldg. $2,500,000. Wetherell & Harrison, 506 Shops Bldg., archts. CD 1/4/56.

Minn., Minneapolis—FOUNDRY—Central Machine Works Co., 1234 Central Ave., soon lets contract, 1 story, 90 x 120 ft. concrete block foundry bldg. Fasth, Hillstrom & Horty, Inc., 910 Midland Bank Bldg., archt.

Mont., Billings—GARAGE—Downtown Parking, Inc., c/o Orr Pickering & Assocs., archts., Fratt Bldg., soon lets contract, 4 story, bsmnt. rein.-con. parking garage. $400,000. CD 1/9.

Tex., San Antonio—BOWLING—Bowlerama of Texas, Inc., c/o John Chenault, archt., 1506 Fredericksburg Rd., soon lets contract, 32 lane bowling plant. $400,000. John Edens, Jr. & Barry F. Johnson, 1102 Basse Rd., eng. CD 4/10.

HEAVY CONSTRUCTION—LB & CA

Thornton Bros. Co., 1324 Dayton Ave., St. Paul, CA **$167,188** (4 bidders), repave University Ave. from Hamline to Fairview Aves. and seal coat University Ave. from Oxford to Hamline Aves., ST. PAUL, MINN., City, O. P. Simon Jr., purch. agt., 253 City Hall, St. Paul, Minn. Bids May 21, CD 11/9/53.

Megarry Bros., St. Cloud, Minn., LB **$82,206** (3 bidders) grading, sand-grav. sub-base, grav. base, roadmixed bit. surf., concrete curbs and gutters and concrete walks. 1.2 mi. S. P. 78-506-11 (SAR 3) Minn. Proj. S-6413 (2), WHEATON, MINN. Traverse Co., R. L. Johnson, aud., Wheaton, Minn. Bids May 27. CD 5/10.

† **C. F. Bowers Constr. Co.**, Nebraska City, Neb. CA **$605,372**, repair dikes and revetment, Missouri River at Middle Omaha Mission-Upper Decatur Bends, (near Whiting), Inv. 25-066-57-109, IOWA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 24. CD 5/31, under LB.

Greene County Rural Electric Co-operative, 220 N. Crescent St., Jefferson, Iowa, Force Account, **$375,000**. 30 mi. rural electric distr. lines, rehabilitation 40 mi. existing lines, tie lines, sub-station conversion lines, transformers improv., etc., Green Co., IOWA. CD 4/15.

Zook Constr. Co., Belmont, Iowa, CA Est. **$73,000**. general contract Chester P. Luick Memorial Swimming Pool with wading pool, deck, fence, bathhouse and filter equip., BELMONT, IOWA. City, City Hall, Belmond, Iowa. Bids May 9. CD 4/23.

Iowa Road Building Co., Fairmount, Minn. **CA $92,678** Section 2, street and sidewalk imprvs. MANCHESTER, IOWA. City, City Hall, Manchester, Iowa. Bids May 2. H. R. Green Co., 417 1 Ave. S. E., Cedar Rapids, Iowa, engrs.;
Glover Constr. Co., Luverne, Minn. CA **$75,175**, Section 1, street and sidewalk imprvs. (Manchester, Iowa).

Earl Wagner, Monroe, Iowa and **Pella Limestock Co.**, Pella, Iowa, CA **$83,984**, Section 2, surfacing, NEWTON, IOWA. Jasper Co., Court House, Newton, Iowa. Bids May 10.

Spencer Constr. Co., Spencer, Iowa, CA **$232,566** sewage treatment plant, sewers, etc., SIBLEY IOWA. City, C. S. Fitzsimmons, city clk., City Hall, Sibley, Iowa. Bids May 21. CD 5/8.

Weldon Bros., Iowa Falls, Iowa, CA **$193,280** (7 bidders) sewage plant, SUMNER, IOWA. City, City Hall, Sumner, Iowa. Bids May 16. CD 4/29.

▲ **MISSOURI**—State Hy. Comn. Jefferson City, Bids opened 5/24,

Mo.—**Clarkson Constr. Co.**, 4133 Gardner Ave., Kansas City, Mo., LB **$1,841,020** (7 bidders) two-24 ft. c. conc. paving 7.263 mi. Boone Co., CD 5/7.

Mo.—**M. Hoeffken Co., Hoeffken Bros., Inc., Mary Constr. Co.**, 222 West B St., Belleville, Ill., LB **$2,318,202** (5 bidders) two 24 ft. c. conc. paving 1.886 mi. St. Louis Co., LB **$117,907,** (5 bidders) Expressway lighting 1.886 mi. St. Louis Co. CD 5/9. mi. St. Louis Co., CD 5/9.

Mo.—**Orco Contg. Co.**, 310 S. Fillmore, P. O. Box 3775, Kirkwood, Mo., LB **$88,308** (4 bidders) grav. or crushed stone surf. 5.595 mi., Gasconade Co., CD 5/7.

Mo.—**Reno Constr. Co.**, P. O. Box 61, Overland Park, Kan.; LB **$917,769** (8 bidders) b. conc. paving 7.986 mi., Camden Co.;

Mo.—**Universal Bridge Co., Inc.**, 1200 Southwest Blvd., Kansas City, Kan., LB **$117,822** (5 bidders) c. conc. paving 0.236 mi., St. Louis Co.;

Mo.—**Howard Constr. Co.**, 1504 N. Osage, Sedalia, Mo., LB **$92,643** (6 bidders) grav. or crushed stone surf. 9.646 mi., Ralls Co.;

Mo.—**J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Kan., LB **$1,124,464** (7 bidders) 24 ft. c. conc. paving, 38 ft. bit. material surf. 6.155 mi., Wright Co.; LB **$85,439** (7 bidders) 24 ft. c. conc. paving, 38 ft. bit. material surf. 0.789 mi., Wright Co. CD 5/9.

Midwest Pre Cote Co., 7600 E. 17 St., Kansas City, Mo., LB **$178,010**, resurf. 7½ mi. city streets, KANSAS CITY, MO. Director P. Wks., City Hall, Kansas City, Mo. Bids May 24.

American Paving & Constr. Co., 8600 Wayne St., Kansas City, Mo. CA **$146,110**, paving, sealing 4½ mi. boulevards, KANSAS CITY, MO. Park Bd., J. V. Lewis, supt., City Hall, Kansas City, Mo.

† **Southeast Constr. Co., Inc.**, 127½ Main St., Pine Bluff, Ark., LB **$244,672**, est. $274,709 Sch. B, access roads near Dardanelle Lock and Dam, ENG-03-050-57-64, ARKANSAS. U. S. Eng., P. O. Box 867, Little Rock, Ark. Bids May 22, CD 4/30.

▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck,

N. D.—**Wm. Collins & Sons, Inc.**, 606 Black Bldg., Fargo, N. D. CA **$501,599**, base, b.conc. 26.125 mi. Proj. No. F-108 (6), F-152 (3) & S-695 (4), Nelson and Griggs Counties.; CA **$192,460**, b. conc. surf., 8.637 mi. Proj. No. F-237 (4), McKenzie Co.;

N. D.—**Tennefos Constr. Co.**, 62½ Broadway, Fargo, N. D. CA **$130,737**, base, b. conc. 6.052 mi. Proj. No. S-314 (13), Oliver Co.;

N. D.—**P. A. Bradbury Constr. Co.**, Wylie Park Rd., Aberdeen, S. D. CA **$374,364**, b. conc. 17.578 mi. Proj. No. F-17 (10), F-158 (4) & F-233 (5), Griggs and Steele Counties;

N. D.—**Scheffler & Mahrer**, Forman, N. D., and **David & Rix**, Bismarck, N. D. CA **$330,300**, tr. serv. grav. 15.249 mi. Proj. No. F-308 (7), Dunn Co.;

N. D.—**Archie Campbell, Inc.**, New Rockford, N. D. CA **$369,339**, base, bit. surf. tr. 16.499 mi. Proj. F-412 (6), Cavalier Co. Grand total $1,898,799. Bids May 24. CD 5/9.

NORTH DAKOTA—State Hy. Dpt., Bismarck, Bids opened 5/24,

Schultz & Lindsay, 320½ Broadway, Fargo, N. D. LB **$173,737**, base, bit. surf. 14.25 mi. Proj. No. S-602 (6) & S-538 (4), Bottineau Co. CD 5/9.

† **H. Halverson, Inc.**, E 5019 Sprague St., Spokane, Wash. CA **$571,937**, Ready Air Craft Shelter, Minot Air Force Base Inv. 25-05-066-57-69, MINOT, N. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 17. CD 4/24, under LB.

† **Lowe Constr. Co.**, 2325 9 Ave. N., Billings, Mont. CA **$930,739**, Ammunition Storage, ADC type, Minot Air Force Base, Inv. 25-066-57-91, MINOT, N. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 21. CD 4/24, under LB.

Elliott Constr. Co., Redick Tower, Omaha, Neb., LB **$258,304** (9 bidders) 62 mi. transmission lines, Gage and Lancaster Counties, NEBRASKA. Norris Rural Public Power Dist., Beatrice, Neb. Bids May 18. CD 4/29.

▲† **Massman Constr. Co.**, 3917 Broadway, Kansas City, Mo. CA **$1,211,005**, repair dikes and revetments, Missouri River, Ponca-Upper Sioux City Bends, Inv. 25-066-57-107, NEBRASKA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 23. CD 5/31, under LB.

† **Kingery Constr. Co.**, 1941 Y St., Lincoln, Neb. LB **$207,021**, commissary food sales and flashing for 2 maintenance hangars, Lincoln Air Force Base, Inv. 25-066-57-1, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 22. CD 5/1.

† **Ace Constr. Co.**, 2110 S. 55 St., Omaha, Neb. and **M and A Constr. Co.**, Superior, Neb. LB **$541,956** (8 bidders) Woodston diversion dam, Solomon Div., Missouri River Basin Proj., Spec. DC 4884, KANSAS. Bureau Reclamation, Dpt. Interior, Stockton, Kan. Bids May 21. CD 5/17.

† **N. F. English**, Hutchinson, Kan., LB **$200,000** (4 bidders) aircraft warning center, ENG-23-028-57-78, HUTCHINSON, KAN. U. S. Eng., 1800 Federal Office Bldg., Kansas City, Mo. Bids May 23.

Rhoades Constr. Co., 413½ Main St., Newton, Kan. CA **$56,433**, WW sys., exten., imprvs. incl. larger mains, fire hydrants, etc., NORTH NEWTON, KAN. City Daniel J. Epp, city clk., City Hall, North Newton, Kan.

† **H. G. Gozad**, P. O. Box 411, Sulphur, Okla., LB **$76,891**, flood water retarding structures, Sites, 5, 6, 7, 9 and 13, Mill Creek, Washita River Watershed, Inv. SCS-42-OK-57, OKLAHOMA. Soil Conservation Service, Agricultural Center Bldg., Stillwater, Okla. Bids May 23. CD 5/9.

TEXAS—State Hy. Comn., Austin, Bids opened 5/24,

R. C. Buckner, P. O. Box 609, Jacksonville, Tex. LB **$62,304**, B. R. I. Overpass and approaches 0.608 mi. Hy. FM 39, Proj. C. 643-1-13, Leon Co. CD 5/7.

▲ **TEXAS**—State Hy. Comn., Austin. Bids opened 5/25,

Tex.—**Tri-State Constr. & Equip. Co. Inc.**, Borger, Tex. LB **$167,987**, River bridge and approaches 1.23 mi. Hy. FM 267, Proj. C. 538-1-13, Knox Co.; LB **$99,681**, widening 5 bridges and 26 culverts 0.728 mi. Hy. FM 50. Proj. C. 457-3-10, Washington Co.;

Tex.—**Ward Constr. Co.**, 6936 San Pedro, San Antonio, Tex., LB **$94,894**, widening Cibolo Cr. Bridge 0.111 mi. Hy. US 281, Proj. C. 253-3-21, Comal Co.;

Tex.—**Austin Bridge Co.**, P.O. Box 1590, Dallas, Tex., LB **$634,265**, Malloy Bridge road overpasses, large drainage structures 0.587 mi. Hy. US 75, Proj. I. 832 (20) & I. 569 (19), Dallas and Ellis Counties;

Tex.—**R. C. Buckner**, P.O. Box 609, Jacksonville, Tex., LB **$189,024**, widen structures and approaches 2.119 mi. Hy. U.S. 287, Proj. S. 1467 (3) & S. 1893 (3), Polk Co. CD 5/2.

TEXAS—State Hy. Comn., Austin. Bids opened 5/25,

John F. Buckner & Sons, P.O. Box 76, Cleburne, Tex., LB **$462,245**, extending structures, widening and leveling up 8.949 mi. Hy. US 84, Proj. F. 450 (7), Freestone Co. CD 5/7.

▲ **TEXAS**—State Hy. Comn., Austin,

Tex.—**E. B. Darby & Co., Inc.**, P. O. Box 467, Pharr, Tex., CA **$658,006**, flex. base and b. conc. 16.646 mi. Hy. SH 100, Proj. S. 1911 (1), Cameron Co. CD 5/31;

Tex.—**E. B. Darby & Co., Inc. & Trinity Constr. Co., Inc.**, P. O. Box 467, Pharr, Tex., CA **$1,123,375**. c. conc. 6.657 mi. Hy. SH 288, Proj. F. 1037 (4), Brazoria Co.;

Tex.—**Gulf Bitulithic Co., & Schwope Engineering Constr. Co.**, P. O. Box 2572, Houston, Tex., CA **$1,281,948** fnd. crs., c. conc. 2.157 mi. Hy. US 75, Proj. I 519 (18), Harris Co. CD 5/31, under LB.

Tex.—**John F. Buckner & Sons**, P. O. Box 76, Cleburne, Tex., CA **$791,691**, flex. base shoulders and hot mix b. conc. 26.761 mi. Hy. SH 114, 352 and Loop 12, Proj. C 353-4-20, Dallas Co. CD 5/31, under LB;

Tex.—**Henry L. Stafford**, P. O. Box 1047, Lubbock, Tex., CA **$1,086,786**, flex. base and b. conc. 30.868 mi. Hy. SH 51, Proj. S 1514 (4), Andrews and Ector Counties;

Tex.—**Schwope Bros. & Schwope Engineering Constr. Co.**, 6633 W. Commerce, San Antonio, Tex., CA **$1,407,960**, flex. base and hot mix b. conc. 17.642 mi. Hy. US 81, Proj. I 165 (16), Webb Co. Grand total $6,349,765. Bids May 25, awarded May 31.

Mosher Steel Co., 5100 Washington St., Houston, Tex., CA **$125,000**, foundation steel at Seguin, Shiner, Weimar, Lac Spring, Katy, Bulverde, where microwave relay stations and towers will be built, TEXAS. Southwestern Bell Telephone Co., 1407 Jefferson St., Houston, Tex. CD 5/24.

JAC Electric Co-operative, Bluegrove, Tex., Owner Builds. **$80,000**. rural pole telephone lines, Clay and Jackson Counties, TEXAS. CD 10/29.

Mid-Tex Constr. Co., Mineral Wells, Tex., Owner builds. **$48,000**. water lines, facilities, ANDREWS, TEX.

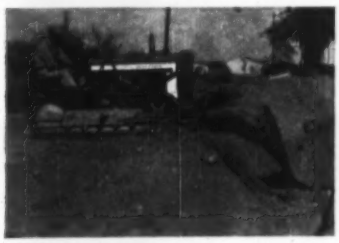
Mid-Tex Constr. Co., Mineral Wells, Tex. Owner Builds. **$75,000**. storm sewers, **$77,000**. sanitary sewers, Terrace Hills Subdivision, ANDREWS, TEX. CD 5/10.

(Continued on page 142)

Do It Yourself with
JOHN DEERE Tractor Power

Fast-working power-driven trenchers dig as deep as 7 feet and as wide as 20 inches.

Choose crawler or wheel-type rig with loader in front, backhoe in rear.



Crawler-dozer combination shown here and in large scene at top is ready to work for you in any kind of weather.

Or you can equip your tractor with dozer in front and backhoe in rear as this plumbing contractor has done.

ARE PROFITS and completion dates slipping away from you because you must wait for outside help and equipment?

For a surprisingly low outlay you can own your own power equipment, do your own trenching and backfilling and get your total job done on time, using your own help.

John Deere mobile power rigs—crawler and wheel-type—are simple, easy to understand. They are sure-footed and stable, inexpensive to buy and maintain. Both tractors have a world of power for their size (approximately 30 engine h.p.). Best of all, they are light enough to work over septic tanks and new foundations—where larger, heavier tractors would be apt to cause cave-ins. Because they are so compact in size, these units will work inside buildings and down in excavations—mighty important features to you.

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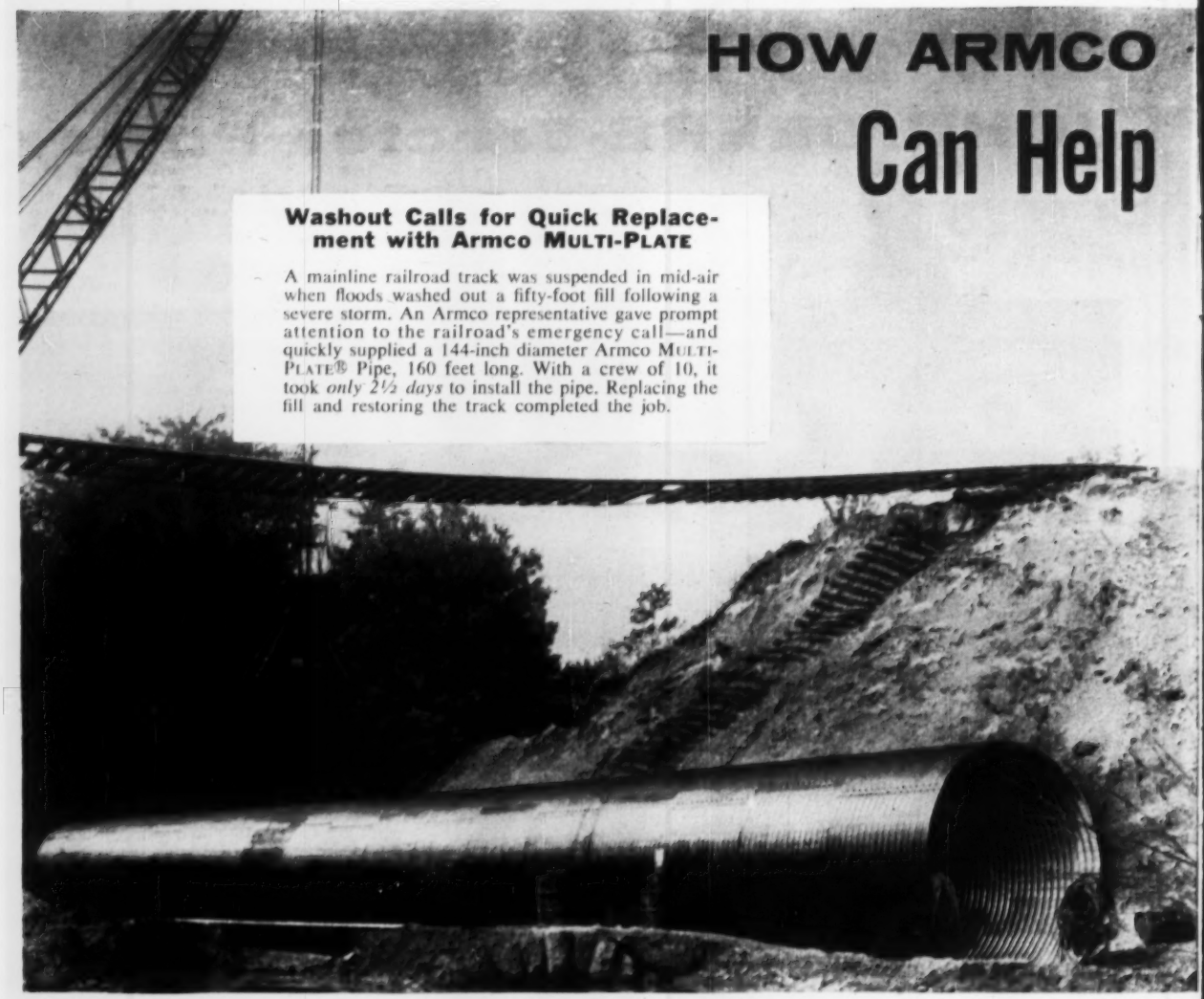


Washout Calls for Quick Replacement with Armco MULTI-PLATE

A mainline railroad track was suspended in mid-air when floods washed out a fifty-foot fill following a severe storm. An Armco representative gave prompt attention to the railroad's emergency call—and quickly supplied a 144-inch diameter Armco MULTI-PLATE® Pipe, 160 feet long. With a crew of 10, it took *only 2½ days* to install the pipe. Replacing the fill and restoring the track completed the job.

Failing Sewer Renewed *Quickly* With ASBESTOS-BONDED Pipe

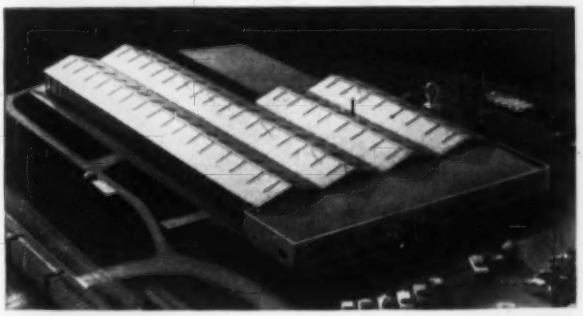
(Left) The invert of a monolithic sewer was failing. The quick, yet lasting solution was to thread Armco ASBESTOS-BONDED® Pipe of slightly smaller diameter into the old structure. This way there was very little reduction in capacity, and the job was done quickly, at far less cost than complete replacement. The threat of future trouble was solved, too. ASBESTOS-BONDED Pipe is ideally suited to extreme corrosive service. It features a combination of asbestos fibers imbedded in a zinc coat, plus a bituminous sealer.

Armco Construction

PRODUCTS AND SERVICES

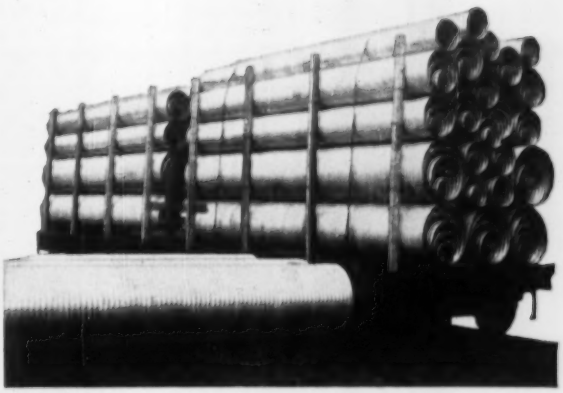
You in Emergencies

You need action FAST when trouble hits important facilities. A bridge washout, a sewer failure, a fire in an essential building—all call for not only a quick cure, but a lasting one. Here are a few of the ways in which Armco Products and Services can help.



Manufacturer Back in Business Fast After Disastrous Fire

Fire knocked out the entire production facilities of this plastic boat manufacturer. A new building was needed fast. Rebuilding with factory-made Armco Steel Buildings, the company was able to meet its former full production rate in just 5 months. A combination of fast delivery and quick, simplified erection helped meet this emergency. The "L" shaped Armco Steel Building is made up of four 40-foot spans, providing 30,000 square feet of floor space.



Fast Service by Rail or Truck from 51 Plants

The 51 Armco fabricating plants throughout the United States and Canada are good reasons why you can get the materials you need—*when you need them.* From these plants, Armco Pipe, Guardrail, Sheeting, Retaining Walls and other Armco Construction Products are speeded to the job site.

Armco Construction Service Can Save Time and Money

(Left) Armco Construction Service does a specialized subcontract in a hurry. Special machine bores hole and places casing of Armco Pipe for conduit under railroad tracks. Contractor thus avoids problems of small, specialized portion of the big job.

WRITE FOR HELPFUL DATA

Complete data is yours for the asking. Write us, outlining your drainage or construction problem. Armco Drainage & Metal Products, Inc., 5087 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

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CAKED WITH CONCRETE

this phone never failed

Moving with the job as it progressed, this phone was one of a series used by the S. A. Healy Company on the Bowery Bay Sewerage Disposal job, almost five miles long.

Being subjected to such hardships is nothing new for HOSE-McCANN Sound Powered Telephones for they are made to operate just about everywhere with the same dependable service . . . under normal conditions or in any emergency.

NEED NO CURRENT Activated by the sound energy of the voice, these phones operate at all times without batteries or other outside sources of current. For permanent installation on industrial projects or for temporary use on construction jobs, HOSE-McCANN Phones offer trouble-free performance with a minimum of upkeep.

INDOOR OR OUTDOOR MODELS Available in selective or common ringing and semi-selective or common talking.

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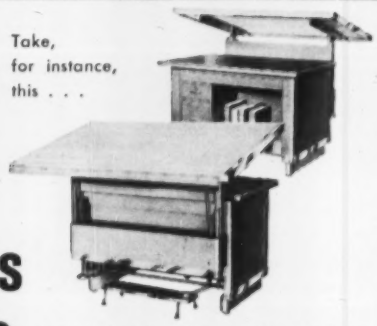

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(Continued from page 138)

Constr. Co., Mineral Wells, Tex. Owner Builds. $[illegible],000. asphalt-paved streets, ANDREWS, TEX.

E. H. Reeder, 2128 Hawes St., Dallas, Tex., LB **$90,740.** sanitary sewer in West Dallas, DALLAS, TEX. City, City Hall, Dallas, Tex. Bids May 21. CD 1/31/56.

Potcet Constr. Co., Potcet, Tex., LB **$151,038.** asphalt paving 60 city blocks, HEREFORD, TEX. City, City Hall, Hereford, Tex. McMorries & Assocs., 527 Amarillo Bldg., Amarillo, Tex., engrs. Bids May 6. CD 4/24.

Hill Co., c/o Courthouse, Hillsboro, Tex., Owner Builds. **$80,000.** road reconstr. Precincts, 1 ,2, 3, 4, HILLSBORO, TEX.

City, City Hall, Houston, Tex., Owner Builds. **$85,000.** misc. drainage imprvs., HOUSTON, TEX. Frank Baldwin, Houston, Tex., dir. P. Wks., engr. CD 8/3.

City, City Hall, Houston, Tex., Owner Builds. **$75,000.** misc. street repairing, reconditioning, HOUSTON, TEX. Frank Baldwin, Houston, Tex. Dir. P. Wks., Eng. CD 7/30/54.

Harris Co., c/o Courthouse, Houston, Tex., Owner Builds. **$100,000.** general bridge reconstr. (because of floods) HOUSTON, TEX. CD 7/7/53.

Harris Co., c/o Courthouse, Houston, Tex., Owner Builds. **$100,000.** misc. road repairing and imprvs. (because of floods) HOUSTON, TEX. CD 7/7/53.

Orange Co., c/o Courthouse, Orange, Tex. Owner Builds. **$75,000** general road imprvs. surf. Prec. 1; **$90,000** Prec. 2; **$85,000** Prec. 3; **$80,000** Prec. 4, ORANGE, TEX. Grand total $330,000. CD 9/18.

Gray Co., c/o Courthouse, Pampa, Tex. Owner Builds. **$75,000.** bridge repairing, strengthening, imprv. PAMPA, TEX. CD 4/17.

Gray Co., c/o Courthouse, Pampa, Tex. Owner Builds. **$90,000.** general road constr., repairing, PAMPA, TEX. CD 3/7.

City, City Hall, Paris, Tex., Owner Builds. **$55,000.** 8 in. water service mains; **$84,500.** reconditioning present water lines and replacing in trenches, PARIS, TEX. CD 8/20.

† **Shiflet Bros.**, P. O. Box 2181, Abilene, Tex., LB **$102,028.** est. $102,919. community bldg at Air Force Base, ENG-41-443-57-41, SWEETWATER, TEX. U. S. Eng., P. O. Box 1600, Fort Worth, Tex. Bids May 24. CD 4/19.

† **MONTANA**—U. S. Forest Service, Denver Federal Center, Denver, Colo. Bids opened 5/15.

Neil R. Miller Co., Box 1033, Missoula, Mont., LB **$217,750;** grading, West Fork Bitterroot Proj., Bitterroot National Forest, Ravalli Co. CD 4/25.

▲ **NEW MEXICO**—At Office L. D. Wilson, Chief Hy. Engr., State Hy. Bldg., Cerrillos Rd., Santa Fe, N. M.—**Henry Thygesen & Co.**, 424 Kinley Ave. N. E., Albuquerque, N. M., CA **$789,200**, est. $812,566 (4 bidders) two-lane grading, base course, plant mix surf. course, wid'n. existing bridge, 3 major concrete box culverts Fed. Aid Proj. No. F-017-2(1), Socorro Co.; CA **$966,699**, est. $1,268,885, (4 bidders) four-lane, grading, base course, hot plant bit. surf. 1 multiple concrete box culvert, 1-interchange with structure 5.372 mi. US 70-Organ-White Sands Proving Grounds, Fed. Aid Proj. No. F-018-1(4), Dona Ana Co.;

N. M.—**Skousen-Hise Contg Co. & D. D. Skousen &** Son, Springer B, Albuquerque, N. M., CA **$1,901,995**, est. $1,739,439 (4 bidders), 4 lane, grading, drainage structures, base course, hot plant bit. surf., 1 interchange with structure and misc. constr. 8.104 mi. U. S. 66 from Junction U. S. 66-84 eastward toward Santa Rosa, Fed Aid Proj. No. I-093-5(5), Guadalupe Co.;

N. M.—**Brown Constr. Co.**, 3525 4th Ave. N. W., Albuquerque, N. M., CA **$2,024,944**, est. $2,431,156, (4 bidders), four-lane, grading, base course, hot mix bit. surf., two multiple concrete box culverts one-four span precast concrete girder bridge 10.515 mi. US 70-80 from Luna-Grant County Line-West, Fed. Aid Proj. No. I-092-1(5), Grand Co. Grand total $5,718,693. CD 5/21.

NEW MEXICO—At Office L. D. Wilson, Chief Hy. Engr., State Hy. Bldg., Cerrillos Rd., Santa Fe,

D. D. Skousen & Son, 8740 4th N. W. Albuquerque, N. M., CA **$81,510**, est. $83,138 (3 bidders), sealing with asph. and stone chips 45.2 mi. on U. S. 66 between Tucumcari and Cuervo, on U. S. 54 in Tucumcari and on SR 104 in Tucumcari, S. P. No. SP-$-003-5(600), F-003 6(600) F-025-3 (600), S-1420 (600), Quay and Guadalupe Counties, Bids May 29. CD 5/21.

BUILDINGS—LB & CA

▲ **Henkel Constr. Co.**, 525 9 St. S. E., Mason City, Iowa, CA **$1,692,250**, general contract, Southwest JUNIOR HIGH SCHOOL, ALBERT LEA, MINN. Bd. Educ., Albert Lea, Minn. Bids May 23. CD 5/31, under LB.

G. J. Grant Constr. Co., Como Ave. and N. P. Tracks, St. Paul, Minn., CA **$926,655.** general contract, Edgewood JUNIOR HIGH SCHOOL, MOUNDS VIEW (P. O. NEW BRIGHTON), MINN. Bd. Educ., Independent School Dist. No. 38, D. D. Wendt, clk., 1900 W. County Rd. 1, Mounds View, Minn. Bids May 21. CD 5/29, under LB.

G. W. Madsen Constr. Co., 2823 Lyndale Ave. S., Minneapolis, Minn., LB **$180,400** (8 bidders) general contract, OFFICE and WAREHOUSE BLDG., Front and Arundel Sts., ST. PAUL, MINN. Inter-City Paper Co., 325 East Kellogg Blvd., St. Paul, Minn. Bids May 22. CD 5/23.

▲ **Wm. Knudson & Sons**, 608 Flynn Bldg., Des Moines, Iowa, LB **$2,220,849**, general work, HOSPITAL ADDN., DES MOINES, IOWA, Mercy Hospital, c/o Sisters of Mercy, Council Bluffs, Iowa. Bids May 21. CD 5/8;

(Continued on page 145)

620′ 4-span Highway Bridge

by AMERICAN BRIDGE

THIS MODERN STEEL STRUCTURE replaces the original Trinity River Bridge near Hoopa, Humboldt County, California, which was washed out during the December 1955 floods, and the emergency bridge erected to temporarily serve through the following spring and summer.

This new permanent structure is a 4-span welded plate girder cantilever bridge 620′ long and provides a 28′ roadway. The bridge consists of girders, bracings, cross frames, expansion devices, fabreeka pads, anchor bolts, catwalk pipe rails and pier armor, all of which was fabricated and erected by American Bridge.

Designed by: Bridge Department, Division of Highways, State of California.

General Contractor: Peter Kiewit Sons' Company.

NEW FILM AVAILABLE FOR YOUR CLUB, SCHOOL OR CHURCH!

"The Cantilever Bridge" (16mm, 25 minutes), a colorful film of cantilever bridges in general and the new Tappan Zee Bridge in particular, has just been released.

This interesting, educational and entertaining sound film is now available without charge to business, fraternal and civic organizations, churches, schools and colleges. Also available are "The Suspension Bridge" (16mm, 26 minutes showing time) and "Building for the Nations" (16mm, 35 minutes showing time). For bookings, write to Pittsburgh office.

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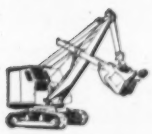


(Continued from page 142)

Central Plumbing & Heating Co., 1912 Ingersoll, Des Moines, Iowa, LB **$828,500** mechanical work (Des Moines, Ia).

▲ **J. G. Miller Constr. Co.**, 222 W. Mullan St., Waterloo, Ont., CA Est. **$1,500,000**. 6 story, concrete, brick MANUFACTURING BLDG., WATERLOO, IOWA. John Deere Tractor Works, 400 Miles St., Waterloo, Iowa.

▲ **Contemporary Homes, Inc.**, Fred Kemp, pres., 9220 Lackland Rd., Overland 14, Mo. Owner Builds. **$1,750,000**, 175 RESIDENCES, 3 bedroom, bath-and-half, in new subdivision adjacent to Section V of Robinwood Subdivision, FLORISSANT, MO.

Charles F. Vatterott Constr. Co., 835 Loyola Dr., Florissant, Mo., Owner Builds. **$760,000**, 76 three bedroom, bath-and-half, 1 story, bsmnt. RESIDENCES, in Third Section of DeSmet Subdivision, adjacent to Hy. 140, FLORISSANT, MO.

J. J. Jackson, Marshfield, Mo., LB **$270,000**. 1 story, 170,000 sq. ft. SERVICES and HEADQUARTERS BLDG., MARSHFIELD, MO. Show-Me Power Co-operative, Marshfield, Mo. Bids May 6. CD 5/1.

Bob Eldridge Constr. Co., 3206 Strong St., Kansas, City, Kan., CA **$646,607**, general contract, 3 story, 72 x 347 ft., brick SCHOOL, NORTH KANSAS CITY, MO. School Dist. 74, 23 annd Gentry Sts., North Kansas City, Mo. Bids May 7. CD 5/15, under LB.

▲ **G. L. Tarlton Constr. Co.**, 5500 West Park Ave., St. Louis 10, Mo., LB **$1,929,387**, general contract 3 story, 2 mezzanines, bsmnt., brick, steel, concrete, glass, 143,900 sq. ft. POPE PIUS XII MEMORIAL LIBRARY, south side Lindell Blvd., between Grand Blvd. and Spring Ave., ST. LOUIS, MO. St. Louis University, Very Rev. Paul C. Reinert, S.J., pres., 221 N. Grand Blvd., St. Louis 3, Mo. Bids May 23. CD 5/1;
Natkin & Co., 5555 Manchester Ave., St. Louis 10, Mo., LB **$549,100**, heating, ventilating and air-conditioning contract for library (St. Louis, Mo.).

▲ **Dickman-Pickens—Bond Constr. Co.**, Gazet Bldg., Little Rock, Ark., CA **$1,500,000**. 3 story, 65,000 sq. ft. OFFICE, 9th and Louisiana Sts., LITTLE ROCK, ARK. Arkansas Power & Light Co., 123 W. 4th St., Little Rock, Ark. CD 2/26/53.

J. E. Kreig & Sons, 2014 Main St., Fargon, N. D., CA **$505,015**. SCHOOL of NURSING RESIDENCE, FARGO, N. D. St. Lukes Hospital Assn., 727 Broadway, Fargo, N. D. Bids Apr. 30. CD 5/14, under LB.

Estrin Constr. Co., 828 E. 9th St., Kansas City, Mo., CA **$200,000**. WAREHOUSE, KANSAS CITY, KAN. Merriman Mortgage Co., Bd. of Trade Bldg., Kansas City, Mo. W. B. Fullerton, W. 10 St., Kansas City, Mo., archt. Kaiser Aluminum & Chemical Co., lessee.

Mid-Tex Constr. Co., Mineral Wells, Tex., Owner Builds. **$363,125**. 24 DWELLINGS, **$378,350**. 33 DWELLINGS in Terrace Hills Subdivision, ANDREWS, TEX. CD 5/10.

Shelby Co., Center Tex., cancelled bids to have been opened May 22, HOSPITAL, CENTER, TEX. Est. **$450,000**. CD 5/2.

▲ **LeBlanc, Inc.**, 2518 Huldy St., Houston, Tex., CA **$1,000,000**. CLASSROOM BLDG., HOUSTON, TEX. University of Houston, 705 Fannin Bldg., Houston, Tex. Bids May 7. CD 4/24.

E&R Lumber Co., 2710 Texas Ave., Lubbock, Tex., Purchase and Hire, **$355,000**. 30 DWELLINGS, LUBBACK, TEX. CD 5/16.

▲ **W. R. Grimshaw**, Box 1416, Odessa, Tex., CA **$2,000,000**. BANK-OFFICE, MIDLAND, TEX. First National Bank Bldg., Main and Wall Sts., Midland, Tex. Bids May 7, CD 4/30.

D. J. Rheiner Constr. Co., 209 Insurance Bldg., San Antonio, Tex., CA **$97,710**. WAREHOUSE, SAN ANTONIO, TEX. Martin Wright Electric Co., 1001 Navarro St., San Antonio, Tex. CD 5/27.

▲ **James R. Howell & Co.**, 1030 W. 6 Ave., Denver, Colo., CA Est. **$2,000,000**. new motor-age BANK bldg., incl. building 104 ft. in diam., circular in shape with 5 drive-in windows on the outer rim, 5 addnl. drive-in windows on islands to be linked with main building by tunnels, DENVER, COLO. Central Bank & Trust Co., 15 and Araphaoe Sts., Denver, Colo. William C. Muchow, 1730 Glenarm Pl., Denver, Colo., engr.-archt.

FAR WEST

HEAVY CONSTRUCTION—BA

† **Washington**—UNDERGROUND FUEL OIL TANKS—BA 6/20—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, install twelve 2,000 gal. underground fuel oil tanks, asphaltic concrete surf. parking areas and roads, drainage, water tanks, pumphouses, etc., for facility modifications in Seattle defense area, ENG-45-108-57-151.

† **Washington**—TRANSMISSION LINES—BA 6/24—Bonneville Power Admin., 1001 N. E. Lloyd Blvd., Portland, Ore., relocate Tower 5, Ross-St. Johns 230-kv Lines No. 1 and 2, Inv. 8423. Plans deposit $5. I. C. Stewart, owner's engr. CD 2/5/51.

Calif., Los Angeles—BA 6/26—Los Angeles Co. Sanitation Dist. No. 2, 2020 Beverly Blvd., rein.-con. sewerage pipe, Joint Outfall "H" Unit G, Section 2, Huntington Park and Vernon, $150,000. Plans deposit $5. CD 3/6/52.

Calif., Los Angeles—ANIMAL SHELTER—BA 6/26—Los Angeles Co., Hall Record, 501 Hall Records, various bldgs. for Animal Shelter No. 4, Baldwin Park Proj. 7714. $223,825. CD 1/31.

Calif., Los Angeles—BA 6/28—Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Proj. 88, Sepulveda Blvd. storm drain, $279,200. Plans deposit $2.60. H. E. Hedger, c/o owner, engr. CD 11/7/52.

† **Utah**—7/10—Bureau Reclamation, Dpt. Interior, Ogden, earthwork, pipe lines, structures, for Trunklines 10 and 18.8, Davis Aqueduct, Weber Basin Project, DC 4927; adv. 6/3. CD 9/7/44.

BUILDINGS—BA

† **Wash., Spokane**—TEST CELL—BA 6/20—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, 2,200 sq. ft. rein.-con. test cell at Geiger Air Force Base, ENG-45-108-57-150. CD 3/11.

▲ **Calif., Whittier**—HOSPITAL—BA 6/21—Presbyterian Intercommunity Hospital, 215 West Hadley St., reinforced concrete hospital, $2,000,000. CD 12/8/55.

▲ **Calif., Sacramento**—SCHOOL—BA 6/24—Sacramento City Unified School Dist., c/o Supt., 16th and N. St., Hiram W. Johnson Senior High School, 65th and 14th Ave., incl. swimming pool and cadet bldg., $4,000,000. Plans deposit $25. Extended date. Charles F. Dean, 1521 I St., archt. CD 5/20.

Calif., Oakland—SCHOOL—BA 6/25—Oakland Unified School Dist., 1025 2 Ave., rein.-con., frame, Manzanita Elementary School. $450,000. Donald S. Macky, 1444 Webster St., archt. CD 3/28.

Ore., Eugene—COURT HOUSE—BA 7/1—Lane Co., Court House, Eugene, court house. Wilmsen & Endicott, 863 13 Ave. East, archts. CD 9/5/46.

† **Ariz., Phoenix**—HOSPITAL—BA 7/23—Veterans Admin., Munitions Bldg., Wash., D. C., Veterans Administration Hospital Bldg. No. 1 addn. CD 6/28/49.

BUILDINGS—SLC

▲ **Calif., Corte Madera**—SHOPPING CENTER—BA 6/13—Corte Madera Shopping Center, c/o Frank Rusalem, Pickwick Hotel, 5th and Mission St., San Francisco, 2 story main bldg. and one story steel, rein.-con. other bldgs. shopping center. $2,000,000. John S. Bolles, Pier 5, San Francisco, archt. CD 11/1.

HEAVY CONSTRUCTION—LB & CA

† **Jack B. Parson Constr. Co.**, Smithfield, Utah, LB **$349,000**. (7 bidders) sch. 1, Willard Dike, Weber Basin Proj., Spec. DC 4901, UTAH. Bureau Reclamation, Dpt. Interior, Ogden, Utah, Bids May 24, CD 4/26;
Vega Eng. Co., Box 246, Corona, Calif., LB **$76,394** (8 bidders) Sch. 2, Willard drains (Utah).

Pacific Telephone & Telegraph Co., 3 Ave and Seneca St., Seattle 1, Wash. Day Labor, **$213,000**, major telephone line from Auburn to Enumclaw; **$128,000**, addnl. telephone lines; **$75,000** dial switching facilities for 1,000 phones, WASHINGTON. Grand total $416,000. CD 5/18/56.

† **Puget Sound Dredging Co.**, 2929 16th Ave. S. W., Seattle, Wash., LB **$390,622** (3 bidders), stone breakwater and dredging small boat basin and dredging West Channel in Baker Bay, CIVENG-35-026-57-227, WASHINGTON. U. S. Eng., Pittock Block, Portland, Ore. (**Correction**—cost.) CD 5/31, under LB.

S. Morgan Smith Co., 500 Lincoln St., York, Pa., LB **$438,950** (1 bidder), furnish two 115,000 hp. turbine runners for Gorge powerhouse in Skagit project, SEATTLE, WASH., City, County-City Bldg., Seattle 4, Wash. Bids May 21. CD 4/16/54.

† **Larsen Constr. Co.**, Colman Bldg., Seattle 4, Wash., LB **$122,500**, est. $117,137 (5 bidders), replacing bulkheads at Pier 90, naval supply depot, Spec. 6592/56, SEATTLE, WASH. P. Wks. Officer, 13th Naval Dist., Naval Station, Seattle, Wash. Bids May 23. CD 5/8.

Federal Pacific Elec. Co., 1415 Elliot Ave. W., Seattle, Wash., CA **$831,800**, eleven 230-kv outdoor oil circuit breakers for Rocky Beach hydro project, WENATCHEE, WASH. Chelan Co. Public Utility Dist., Wenatchee, Wash. CD 3/21.

Pacific Coast Eng. Co., Oak and Clement St., Alameda, Calif., CA **$498,000**, 2 traveling powerhouse cranes for Rocky Reach hydro project, WENATCHEE, WASH. Chelan Co. Public Utility Dist., Wenatchee, Wash. CD 3/21, under LB.

† **U. S. Eng.**, Pittock Block, Portland, Ore., received no bids May 28, modifying single potential transformer installation at Detroit Dam powerhouse and modifying relays in Detroit and Big Cliff Powerhouses, CIVENG-35-026-57-240, OREGON. CD 5/16.

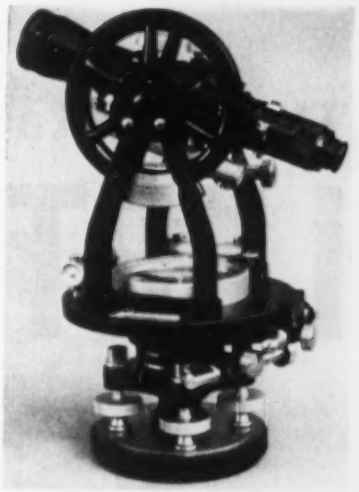
† **J. E. Young Pipe Line Contractors**, 931 E. Rosecrans St., Los Angeles, Calif., LB **$198,398** modifications of pressure reducing stations and meter stations along pipe line distr. sys. Cachuma Proj. near Santa Barbara, Spec. DC 4894, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Oak View, Calif. Bids May 22. CD 4/15.

▲† **Eugene Luhr & Co.**, P.O. Box 48, Columbia, Ill., LB **$1,094,610**, est. $1,466,475 (6 bidders) constr. 17 mi. toe drain channel in Yolo Bypass in connection with constr. of Sacramento Deep Water channel, ENG-57-104, CALIFORNIA. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids May 28. CD 5/10.

J. A. McNeil Co. Inc., 3115 W. Mission Rd., Los Angeles, Calif., CA **$139,000**. 2 story 63x74 ft. control station, 517 S. Marengo Ave., Alhambra, CALIFORNIA. Southern California Gas Co., 601 W. 5 St., Los Angeles, Calif. Allison & Rible, 3670 Wilshire Blvd., Los Angeles, Calif., archts. CD 5/13/55.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,
Calif.—**J. E. Haddock, Ltd. & R. M. Price Co.**, 2285 Pine Crest Dr., Altadena, Calif., LB **$2,161,776**, (3 bidders), graded and c. conc. paved on c. conc. subgrade about 1.7 mi. in Buena Park, Fullerton and

(Continued on page 149)



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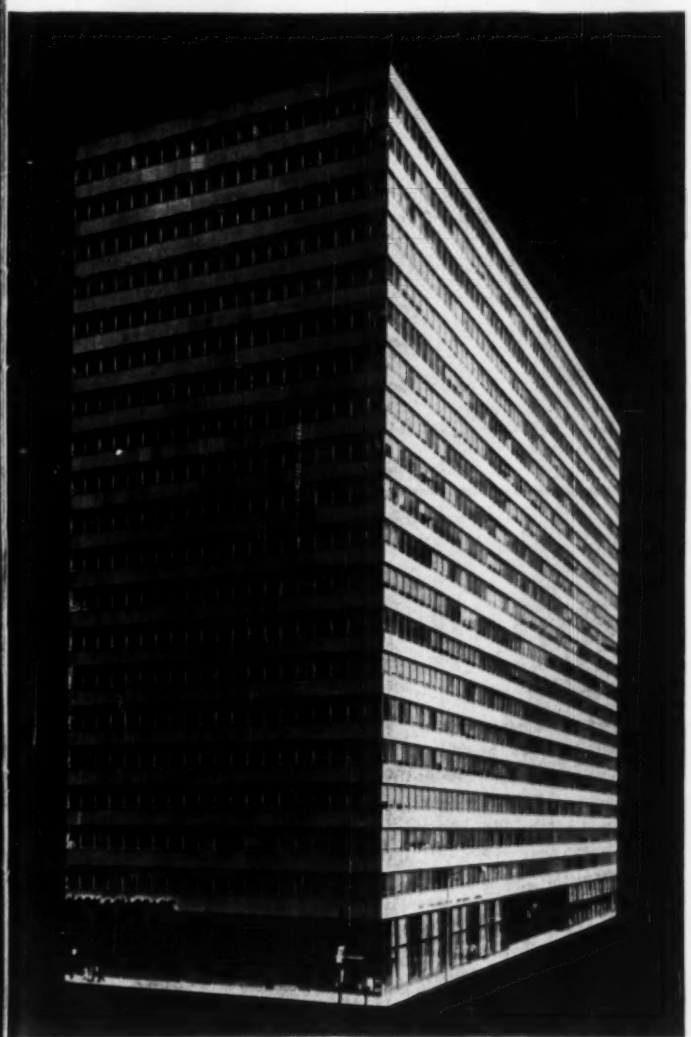
COLGATE-PALMOLIVE BUILDING, New York City. Architects: Emery Roth & Sons. Contractors: 'Uris Brothers. Lupton Aluminum Curtain Wall, Type "H", with 4'5" width module.

MALL BUILDING, Philadelphia, Pa. Architect: Charles R. Colbert. Contractors: Shelby Construction Co., Inc. Lupton Aluminum Curtain Wall, Type "H", with 5' width module.

Curtain Walls
and Windows



3 PENN CENTER, Philadelphia, Pa. Architects: Emery Roth & Sons. Contractors: Caldwell-Wingate Construction Co. Combination fixed and ventilator windows adapted from a standard Lupton design.

These three new high-rise buildings exemplify modern planning and construction. All three were designed with famous LUPTON components. Indeed, LUPTON has always been in the forefront of the curtain-wall movement . . . and for good reason:

The characteristics of LUPTON Aluminum Curtain Walls and Windows result in unusual planning flexibility with either standard or custom units. The wide range of LUPTON styles, in both metal windows and curtain walls, frees you for truly creative planning with utterly reliable materials. *You* design LUPTON-made installations; LUPTON executes your wishes, in manufacture and frequently even in erection. LUPTON's undivided responsibility for the job assures you exact compliance with your instructions, and effects multiple savings for your clients.

SEE SWEET'S (Sections 3 and 17) for the Michael Flynn Curtain Wall and Metal Window Catalogs, and write for further specific information. A call to the nearest LUPTON representative (see the Yellow Pages under "Windows—Metal") will bring fast action—without obligation.

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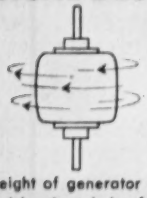
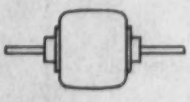
REVOLUTIONARY VERTICAL DESIGN



Spins like a top

Entire weight of generator armature supported by the tubular frame. Engine and main bearing turn the armature—do not support it. Generator spins best on vertical axis—lasts longer.



OLD DESIGN

Generator weight exerts loads on engine shaft and bearings. Causes more wear than in Thor's vertical mounting.

New Thor generator powering a Thor 7¼" SpeedSaw hastens construction of the new Congress Street Expressway in Chicago.

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THOR PORTABLE GENERATOR

Here's the brand new look in generator design—Thor's all-new 1500 watt portable engine-driven generator with vertical mounting.

This handy, compact power plant—available in AC and DC models—is the real answer to the builder or contractor who needs a rugged, portable power source. Check these features, then check your Thor distributor for a demonstration. • **Revolutionary design—vertical shaft engine • Light weight—95 lbs. Strong tubular framework protects unit, assures handling ease. • Heavy duty automatic rewind starter—easily removable for repair. Off-on toggle-type switch. No shock danger • Drip-proof construction—keeps fuel and moisture from entering generator • No-creep—stays put while running, yet slides easily when moved.** Thor Power Tool Co., Prudential Plaza, Chicago 1, Ill.

Thor
PORTABLE POWER
TOOLS

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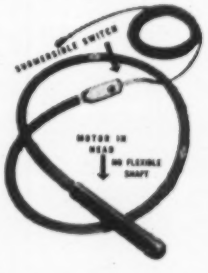
Universal Electric Motor-in-Head Concrete Vibrator



Model CV2-10 has 10-foot hose and switch • **Model CV2-20** has 20-foot hose and switch. • **Model CV2-210** has 10-foot hose on each end of switch. All models include 25-foot 3-conductor electric cable.

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(Continued from page 145)

Anaheim on Santa Ana Freeway, incl. constr. 3 bridges, traffic signal signs and lighting sys., Orange Co.;

Calif.—**MacEmmis & Baker**, 15808 S. Broadway, Gardena, Calif., LB $270,050 (11 bidders), grading and surf. 0.8 mi. on cement treated base in El Monte between Rio Hondo Wash and 0.2 mi. east of San Bernardino Rd., Los Angeles Co.;

Calif.—**Walker & Murphy**, 612 Silver Lake, Los Angeles, Calif., LB $155,431 (9 bidders), plant mix surf. 0.5 mi. and constr. 3 bridges, Riverside Co.;

Calif.—**R. A. Erwin**, P. O. Box 231, Colton, Calif., LB $104,686 (9 bidders), grading, surf. 1.7 mi. Valley Blvd. between San Bernardino Freeway 5 mi. east of Ontario and Cherry Ave., San Bernardino Co. CD 4/26.

CALIFORNIA—State Div. Hys., 1120 N St., Sacramento, Bids opened 5/22,

H. Earl Parker, Inc., 12th and F Sts., Marysville, Calif., LB $472,794 (4 bidders) constr. 2.8 mi. detour U.S. 40, between 0.8 mi. east of Hirschdale and 0.8 mi. west of Floriston and constr. 2 concrete girder bridges, Nevada Co. CD 4/26.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, bids opened 5/23,

Jones Bros. Constr. Co., 147 San Vicente Blvd., Beverly Hills, Calif., LB $104,686 (9 bidders) portion of bridge substructure constr. across Los Angeles River near 8th St. in Los Angeles, Los Angeles Co. CD 4/26.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles.

Ukropina-Polich-Kral, P. O. Box 105, San Gabriel, Calif., CA $864,855, grading, surf. 2 addnl. lanes Santa Ana Freeway for 4.1 mi. between 0.4 mi. southeast of Lakewood Blvd. and 0.1 mi. northwest of Bloomfield Ave., 4 existing rein.-con. structures wid'n. and existing median on 5 St. to be altered, Los Angeles Co. Bids May 16, awarded May 27. CD 5/24, under LB.

CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento, **McCammon-Wunderlich Co. & Wunderlich Contg. Co.**, 2555 Pulga Rd., Palo Alto, Calif., CA $7,292,214, grading 2.6 mi. railroad roadbed and realigning 13.3 mi. U.S. 40 alternate between Wick's Corner North of Oroville, incl. rein. con. slab bridges at Gold Run Creek and Flag Canyon Creek and welded girder overheads at Pentz and Cherokee as part of relocation work for Oroville Dam, unit of State's Feather River Project, Butte Co. Bids May 15, awarded May 29. CD 5/17, under LB.

† **Gresham Constr. Co.**, P. O. Box 300, Santa Clara, Calif., LB $473,512 (2 bidders) 2,950 sq. ft. POWER BLDG., etc. Almaden Air Force Station, ALMADEN, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif.

Chicago Bridge & Iron Co., 712 Fair Oak Ave., Pasadena, Calif., LB $68,395 (2 bidders) 1 m.g. Windsor Hill "B" steel water tank, LA MESA, CALIF. Helix Irrigation Dist., 4769 Spring St., La Mesa, Calif. Bids May 21.

George Miller Constr. Co., 3032 Bandini Blvd., Los Angeles, Calif. CA $241,563, est. $200,000. Joint Outfall Sewer "H", Unit 1G, Section 1, LOS ANGELES, CALIF. Los Angeles Co. Sanitation Dist. No. 2, 2020 Beverly Blvd., Los Angeles, Calif. Bids May 22, awarded May 24. CD 5/6.

Milosvich & Zarubica Constr. Co., 1419 Potrero Ave., El Monte, Calif., LB $537,960 (7 bidders) Proj. 96, Reseda Blvd. Storm Drain, LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 2250 Alcazar St., Los Angeles, Calif. Bids May 24. CD 5/2.

Ukropina-Polich-Krall, 201 E. Las Tunas Dr., San Gabriel, Calif., CA $791,419, rein.-con. bridge and approaches on Olive St. over Los Angeles River and Long Beach Freeway, Compton, LOS ANGELES, CALIF. Bd. Supervs. Los Angeles Co. Hall of Record, Los Angeles, Calif. Bids May 21, awarded May 28.

† **Healy Constr. Co.**, 7350 Palmdale Blvd., Palmdale, Calif., CA $343,116, est. $750,000 (11 bidders) South Access Rd., Edwards Air Force Base, ENG-04-353-57-12, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids May 22, awarded May 24. CD 5/13.

† **U. S. Eng.**, 751 S. Figueroa St., Los Angeles, Calif., cancelled bids to have been opened May 28, airmen's dining hall, Edwards Air Force Base, ENG-04-353-57-79, MUROC, CALIF. $450,000. CD 5/31.

Peletz Constr. Co., 475 W. College Ave., Santa Rosa, Calif., CA $112,625 (11 bidders) 60,000 gal. steel water storage tank and mains, NAPA, CALIF. City, Clerk, City Hall, Napa, Calif. Bids May 20. CD 5/12/54.

A. G. Raisch, P. O. Box 458, San Rafael, Calif., LB $346,752 (7 bidders) surf. 17 mi. various roads, NAPA, CALIF. Napa Co., c/o Clerk, Courthouse, Napa, Calif.

† **Price McNeamer**, 13726 Saticoy St., Van Nuys, Calif., LB $968,136 (9 bidders) addnl storage facilities, ordnance storage area, Oxnard Air Force Base, ENG-04-350-57-93, OXNARD, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids May 23. CD 8/22/55.

▲† **Price, McNemar Const. Co.**, 13726 Saticoy St., Van Nuys, Calif., LB $1,351,955, est. $1,406,486 (5 bidders) Sch. A constr. SAC industrial area, main bldgs., ENG-04-167-57-58, Mather Air Force Base, SACRAMENTO, CALIF. U. S. Eng., 1209 8th St., Sacramento, Calif. Bids May 29, CD 5/10;

Heller, Campbell, Erickson & Lawrence, 4671 24th St. Rd., Sacramento, Calif., LB $296,900, est. $323,460 (5 bidders) Sch. B, SAC warehouse, utilities and electrical services, (SACRAMENTO, CALIF.).

Granite Constr. Co., P. O. Box 900, Watsonville, Calif., LB $231,209 (6 bidders) sanitary and industrial waste sewer in Kipling St., Unit No. 2, SALINAS, CALIF. City, c/o City Clerk, City Hall, Salinas, Calif. CD 6/14/54.

Bejac Constr. Co., 7241 Orangethorpe Ave., Buena Park, Calif., CA $110,551, Freeway water main revision, WD-56, SAN CLEMENTE, CALIF. City, City Hall, San Clemente, Calif. Bids May 15. CD 11/26.

Daley Corp., Mission Valley Rd. and Ward Rd., San Diego, Calif., CA $237,795 (3 bidders) imprv. University Ave., SAN DIEGO, CALIF. City, Civic Center, San Diego, Calif. Bids May 22, awarded May 24.

Goudeseune, Cowan & Beutlinck, P. O. Box 458, Westminster, Calif., CA $135,277 (11 bidders) Laguna Canyon Flood Control Channel from existing Unit No. 1 to Canyon Acres Dr. 0.44 mi. SANTA ANA, CALIF. Orange Co. Court House, Santa Ana, Calif. Bids May 21, awarded May 24. CD 4/11.

Warren Southwest Inc., P. O. Box 419, Torrance, Calif., CA $77,755 (10 bidders) imprv. Arlington Ave., 190 St. to Del Amo Blvd., TORRANCE, CALIF. City, City Hall, Torrance, Calif. Bids May 21, awarded May 24.

BUILDINGS—LB & CA

▲ **Wagner & Martinez**, 181 S. Park St., San Francisco, Calif., CA Est. $1,000,000. DISTRIBUTION PLANT, PORTLAND, ORE. Blake, Moffitt & Towne, 17 E. 3 Ave., Portland, Ore. Delmar L. McConnell, Bd. of Trade Bldg., Portland, Ore., engr. Awarded May 28.

Prudential Homes-Ana Estates, 720 Whittier St., Anaheim, Calif., Owner Builds. $826,750. 61 frame, stucco DWELLINGS, Tract 2569, ANAHEIM, CALIF.

Development Corp. of Riverside, 5708 Van Buren St., Riverside, Calif. Owner builds. $480,000. 1000 sq. ft. 48 stucco DWELLINGS, Rutland and Randolph Sts., ARLANZA, CALIF.

Shaw Land Co., 650 S. Spring St., Los Angeles, Calif., Owner Builds. $494,100. 45 stucco DWELLINGS, Tract 2329, COMPTON, CALIF.

R. G. Fisher, P. O. Box 4081, Fresno, Calif., CA $379,600, (9 bidders) Thomas Elementary SCHOOL Gettysburg and Millbrook Ave., FRESNO, CALIF. Fresno City Unified School Dist., 2348 Mariposa St., Fresno, Calif. Bids May 23. CD 5/8.

E. N. Frame, Box 44625 Hancock Station, Los Angeles, Calif., CA $908,640. 1,300 sq. ft. 72 DWELLINGS, various lots, Tr 3206, GARDEN GROVE, CALIF. W. E. Investment Corp., 1200 Wadsworth St., Compton, Calif.

▲ **Robert E. McKee**, 4700 San Fernando Rd. West, Los Angeles 39, Calif., CA $1,255,350, est. $1,279,912. 2 story Type III, COUNTY COURTS BLDG., GLENDALE, CALIF. Bd. Supervs., Los Angeles Co., 501 Hall of Records, Los Angeles, Calif. Bids May 8, awarded May 21. CD 4/12.

▲ **Frematic Homes, Inc.**, 3402 Rossmoor Way, Los Alamitos, Calif., Owner Builds. $4,830,000. 1600 sq. ft. 347 DWELLINGS, Tr 3189, LOS ALAMITOS, CALIF.

Carter Mack Builders, 1424 W. 251 St., Harbor City, Calif., LB $379,184 (11 bidders) Towne Ave. SCHOOL addn., Gardena, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids May 23. CD 8/22.

Jack H. McDonald, 321 S. San Vicente Blvd., Los Angeles, Calif., CA $150,000. 120 x 250 ft. FACTORY, LOS ANGELES, CALIF. Federal Telephone & Radio Co., 15191 Bledsoe Ave., Los Angeles, Calif. Ernest L. Schroeder, 321 S. San Vicente Blvd., Los Angeles, Calif., engr.

Shoemaker, Co., Ins., 11725 Carmenita Rd., Whittier, Calif., Owner Builds. $440,400, 38 DWELLINGS, Roper Ave. and Caufield St., NORWALK, CALIF.

F. M. Trentham, 13312 Van Nuys Blvd. Pacoima, Calif., CA $487,500. 75 DWELLINGS, E. Pictorial St., E. Ave. P-1 E. Ave. P-2, PALMDALE, CALIF.

Western Empire Constr. Co., P. O. Box 516, Concord, Calif., LB $346,814 (4 bidders) 1 story, 15,600 sq. ft. EL PUEBLO ELEMENTARY SCHOOL addn., PITTSBURG, CALIF. Pittsburg Unified School Dist., c/o Clerk, Pittsburg, Calif. Phillip D. Tomasello, 605 Washington St., San Francisco, Calif., archt. Kellberg-Parquet & Maurer, 417 Market St., San Francisco, Calif., engrs. CD 12/13/56.

Oltmans Constr. Co., 516 Monterey Park Rd., Monterey Park, Calif., CA $235,000. 62,000 sq. ft. FACTORY, PUENTE, CALIF. Roberts Mfg. Co., 13200 N. Baldwin Park Blvd., Puente, Calif.

▲ **George Reed**, 529 Covena St., Modesto, Calif., Owner Builds. $1,049,190. 82 ranch type home subdivision, SACRAMENTO, CALIF.

▲ **H & B Constr. Co.**, 2170 Avenida De La Playa, San Diego, Calif., CA $1,124,800. 101 stucco DWELLINGS, Heritage addn., SAN DIEGO, CALIF. Heritage, Inc., P. O. Box 1122, La Jolla, Calif.

C. S. Williams, 7662 Broadway, Lemon Grove, Calif., LB $699,700 (7 bidders) 2 story, 30,000 sq. ft. COUNTY LAW LIBRARY, SAN DIEGO, CALIF. Bd. Supervs. San Diego Co., Civic Center, San Diego, Calif. Bids May 20.

Harold Roach Constr. Co., 607 N. Vermont Ave., Los Angeles, Calif., CA $175,000. 200 x 250 ft. tilt-up WAREHOUSE, VERNON, CALIF. Blatt Distributing Co., 2454 E. 27 St., Vernon, Calif.

CANADA

HEAVY CONSTRUCTION—BA

Ont., Kingston—BA 7/3—City, City Hall, River St. Sewage Pumping Station. Over $75,000. Gore & Storrie, Ltd., 1130 Bay St., Toronto, engrs.

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BUILDINGS—BA

▲ **Alta., Calgary**—SCHOOL—BA 6/25—Calgary Separate School Bldg., Calgary, rein.-con. with brick exterior St. Mary's Boys School $1,200,000. Plans deposit $100. Rule, Wynn & Rule, 513 8 Ave. W., Calgary, Alta., archts. CD 4/22.

HEAVY CONSTRUCTION—LB & CA

Borger Bros., Ltd., 2004-14A St. S.E., Calgary, Alta., LB $177,755, install 29,000 ft. sanitary sewers with manholes, also 29,000 ft. water mains, incl. valves and hydrants, 200 house connections, BLACK DIAMOND, ALTA. Town, Town Hall, Black Diamond, Alta. Strong, Lamb & Nelson, Ltd., 504 4 St., SE, Calgary, Alta., engr. Bids May 9, CD 1/24.

Jeffries Concrete Ltd., Lethbridge, Alta., CA $102,742, supply concrete and vitr. tile sewer pipe, precast concrete manholes and catchbasin sections, LETHBRIDGE, ALTA. City, City Hall, Lethbridge, Alta., Awarded May 23, CD 12/30/55.

BRITISH COLUMBIA—B. C. Govt., Parliament Bldgs., Victoria, Bids opened 5/22.

B. C.—**General Constr. Co., Ltd.**, Granville Island, Vancouver, B. C., LB $220,677 (4 bidders) bit. surf. in Chilliwack area during 1957-58, Contr. 5-5703. CD 5/16.

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,

General Constr. Co., Ltd., Granville Island, Vancouver, B. C., LB $873,011 (9 bidders) reconstr. Victor Lake-Summit Lake section Trans-Canada Hy. in Revelstoke Electoral Dist., Proj. No. 813 B, CD 7/21/43.

Marpole Constr. Co., Ltd., 844 S. W. Marine Dr., Vancouver, B. C., LB $75,885 (3 bidders) concrete substructure and timber superstructure for bridge at Mile 118, north of Prince George, LB $109,918; concrete substructure and timber superstructure at Mile 147.6 north of Prince George, BRITISH COLUMBIA. Pacific Great Eastern Railway, 1095 W. Pender St., Vancouver, B. C. Bids May 20. CD 5/14.

▲ **BRITISH COLUMBIA**—B. C. Govt., Parliament Bldgs., Victoria,

B. C.—**City Constr. Co., Ltd.**, 107 E. 1st Ave., Vancouver, B. C., CA $1,056,254, widen and reconstr. Lougheed Hy. between Boundary Road and North Road, Burnaby,

B. C.—**W. C. Arnett & Co., Ltd.**, Hefley Creek, B. C., CA $1,600,298, constr. and reconstr. 9.25 mi. Trans-Canada Hy., involving Chilliwack Cheam Creek Section. Awarded May 25. CD 7/21/43.

▲ **Canadian Westinghouse Co.**, 1090 Hamilton St., Vancouver, B. C., CA $2,500,000, supplying four 62,000 kw generators for installation in powerhouse at Seton Lake, BRITISH COLUMBIA. B. C. Electric Co., Burrard St., Vancouver, B. C. Awarded May 22.

Alberta Utility Builders Ltd., 6785 E. Hastings St., Vancouver, B. C., CA $398,775, sanitary sewerage system, MISSION CITY, B. C. Village, Village Hall, Mission City, B. C. Bids May 4, awarded May 22. CD 4/18.

Western Bridge & Steel, 145 W. 1st. St., Vancouver, B. C., LB $189,537, (2 bidders) structural steel, hoisting machinery, electrical lighting and wiring at Barge Slip, NORTH VANCOUVER, B. C. Pacific Great Eastern Railway, 1095 W. Pender St., Vancouver, B. C. Crippen Wright Engr., Ltd., 207 W. Hastings St., Vancouver, B. C., engrs.

Dawson Wade & Co., Ltd. & City Constr. Co., Ltd., c/o 775 Clark Dr., Vancouver, B. C., CA $238,344, (joint award) paving and prime coating several roads throughout municipality, RICHMOND, B. C. Richmond Municipality, Municipal Hall, Richmond, B. C. Awarded May 23.

† **Reg Pearen**, 136-15th St., Brandon, Man., LB $74,326 (10 bidders) grade approx. 6.2 mi. Hy. No. 3 in municipalities of Morton and Winchester, MANITOBA. Manitoba Govt., Legislative Bldg., Winnipeg, Man.

▲ **Pearson Constr. Co., Ltd.**, 1019 Erin St., Winnipeg, Man., CA $3,500,000. Kelsey Generating Station on Grand Rapids on Nelson River, MANITOBA. Manitoba Hydro-Electric Power Comn., Electric Railway Chambers, Winnipeg, Man. Bids May 21, awarded May 22. CD 5/15.

B. C.—**J. P. Porter Co., Ltd.**, 1010 St. Catherine St. W., Montreal, Que., CA $55,720, (5 bidders), dredging, HARBOUR GRACE, NEWFOUNDLAND. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Awarded May 24.

QUEBEC—Dpt. P. Wks., Quebec City,

Laverendrye Constr. Co., St. Severin, Que., CA $75,000, bridge over Rivieres des Envies, St. Severin, Champlain Co. Awarded May 27. CD 2/21.

BUILDINGS—LB & CA

▲ **Smith Bros. & Wilson Ltd.**, 1267 Richards St., Vancouver, B. C., CA $1,457,063, 4 story, rein.-con. 94-bed HOSPITAL addn. and alterations, CHILLIWACK, B. C. Chilliwack General Hospital, Chilliwack, B. C. Bids May 8, awarded May 31. CD 5/17, under LB.

▲ **Townsite Constr. Co. Ltd.**, Kitimat, B. C., CA $2,850,000. 300 rental HOUSING UNITS, incl. 30 apartment bldgs., KITIMAT, B. C. Aluminum Co. of Canada Ltd., Kitimat, B. C. Awarded May 22. CD 1/9/51, under Industrial Buildings.

▲ **Cloverdale Constr Co. Ltd.**, New Westminster, B. C., LB $2,010,076 (4 bidders) 4 story, bsmnt, sub-bsmnt, rein.-con. HOSPITAL, NELSON, B. C. Kootenay Lake General Hospital Society, Nelson, B. C. Bids May 23. CD 4/5.

Mutual Constr. Co. Ltd., 553 W. 8 Ave., Vancouver, B. C., LB $105,052 (9 bidders) foundations, concrete and auxiliary works in connection with mechanical services SHOP, NORTH VANCOUVER, B. C. Pacific Great Eastern Ry., B. E. Valde, ch. engr., 1065 W. Pender St., Vancouver. B. C.

Roy James Constr. Co. Ltd., 609 William St., London, Ont., CA 1 story, T-shaped, concrete block, rein.-con., brick, WAREHOUSE and 2 story MANUFACTURING AREA, LONDON, ONT. S. F. Lawrason & Co. Ltd., Nelson St., London, Ont. CD 3/21.

Modern Development, Inc., 437 St. James St. W., Montreal, Que. Owner Builds, $450,000. HOUSING, Marlborough Court, CARTIERVILLE, QUE.

Therroux Constr. Ltd., Old Church Rd., Beaconsfield, Que., Owner Builds, $500,000. 8 blocks, 104-suite brick, concrete APARTMENT BLOCKS, LAKESIDE, QUE. William Robert Green, 4 Chester Ave., Valois, Que., archt.

▲ **Hillsdale Constr. Co. Ltd., and Island Constr. Co. Ltd.**, 5950 Cote des Neigrs Rd., Montreal, Que. Owner Builds, over $2,000,000. HOUSING, Bay Garden-Astoria Park areas, Roxboro, MONTREAL QUE. Emilien Bujold, 6746 Molson St., Montreal, Que., archt.

Frank & Pascal Constr. Co., 207 Craig St. W., Montreal, Que., CA Est. $150,000 (6 bidders) 1 story, part 2 story, rein.-con., brick, block, MANUFACTURING space and WAREHOUSE, De La Roche and Lecocq Sts., MONTREAL, QUE. Phil Meyer & Sol Levinson, c/o Commonwealth Curtain Co., 551 Mount Royal Ave. E., Montreal, Que. Awarded May 24. CD 4/23.

▲ **Frank Hoffer**, 5301 Blvd. Henri Bourassa Blvd., Montreal, Que. Owner Builds, $1,125,000, HOUSING. Henri Bourassa Blvd. and Salk Ave., MONTREAL, NORTH QUE.

ALASKA

HEAVY CONSTRUCTION—BA

† **Alaska**—BA 6/20—U. S. Eng., Anchorage, drilling well, installing pump and hydro-chlorinator and constr. well-house for ACS water supply facilities at Fairbanks, Big Delta and Northway, Inv. 57-81.

† **Alaska, Petersburg**—BA 6/26—Alaska P. Wks., Dpt. Interior, 123 W. 3 St., Juneau, concrete curbs, gutters, sidewalks and grading, surf. 2.3 mi. streets, 3,059 ft. 6- to 10-in. asbestos sewer mains, drainage, Proj. 50-A-241. Plans deposit $15. CD 2/19.

HEAVY CONSTRUCTION—LB & CA

† **Ramstad Constr. Co.**, Anchorage, Alaska, LB $183,258, est. $250,000 (3 bidders) imprv. airport, Proj. 9-50-035-5702, BETHEL, ALASKA, Alaska Dpt. Aviation, Glover Bldg., Anchorage, Alaska. Bids May 21. CD 4/30.

† **Rivers Bros. & Wright**, Anchorage, Alaska, LB $432,703, est. $571,000, imprv. air strip, SAND POINT, ALASKA, Alaska Dpt. Aviation, Juneau, Alaska. Bids May 24.

† **Continental Constructors, Inc.**, Anchorage, Alaska, LB $97,030 (2 bidders) VHF Repeater Facility incl. erecting 2,145 ft. steel tower on concrete fdn., Inv. 57-101, YAKUTAT, ALASKA, Civil Aeronautics Admin. Box 440, Anchorage, Alaska. Bids May 23. CD 5/2.

(Continued on page 152)

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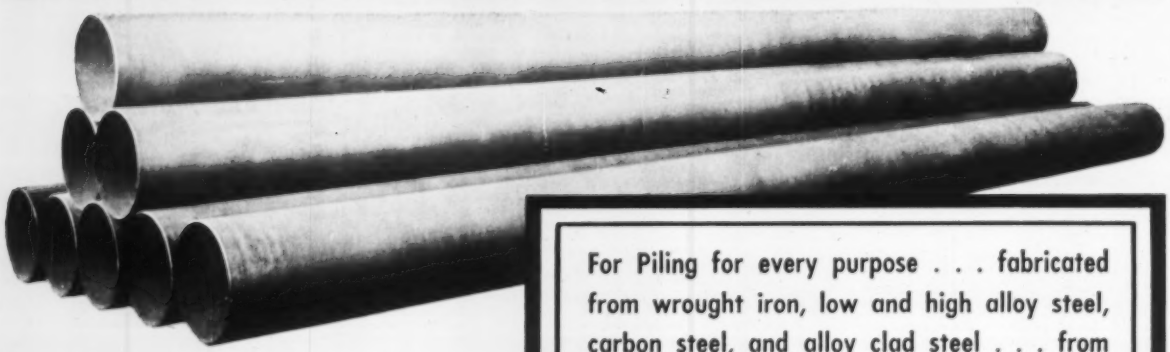

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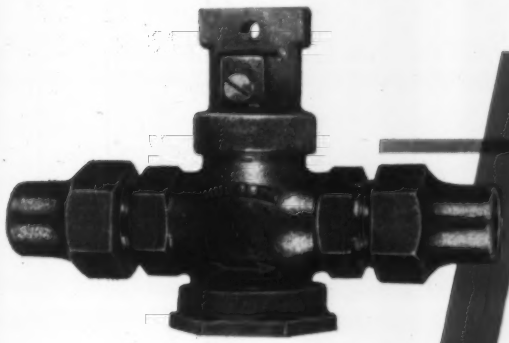

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Steeper key taper provides easier operation. Water pressure exerts an upward force for additional seating action. A downward tap unseats and pressure reseats the key.

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(Continued from page 150)

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **GUATEMALA**—Departmento De Bienes Nacionales, Licitaciones y Asantos Alemanes, 14 Calle 3-60 Zone 1, Guatemala City,

Compania Pan Americana, Guatemala City, Guatemala, CA $1,062,990. three sections of Inter-American Hy. between Barberena and Asuncion Mita on Salvador end of Rd. CD 12/20, under LB.

Constructora Mexicana, Chihuahua, Chihuahua, CA $800,000. irrigation dam at GUADALUPE, MEXICO. Srla. de Recursos Hidraulicos, Mexico City, Mexico. Awarded May 25.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲† **Hurate Y Compania,** Madrid, Spain, LB $1,146,815 (4 bidders) ROT 46, airfield paving and lighting, Spanish Air Base Program, ROTA, SPAIN. Bureau Yards & Docks, Dpt. Navy, 18 St. and Constitution Ave. N. W., Wash. 25, D. C., U. S. A.

FOREIGN

HEAVY CONSTRUCTION—BA

Iraq—BA 8/26—Development Bd. and Ministry of Development, Govt. of Iraq, Baghdad, Civil Engineering and Building Works, Contr. 6, Basrah Power Project. Ewbank & Partners, 10/11 Grosvenor Pl., London, S.W. 1, England, consult. engrs.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Ariz., Phoenix**—City, City Hall, voted bonds May 7, purchase private water co. and make imprvs. $35,000,000. CD 4/2.

Calif., Santa Barbara—City, City Hall, defeated $450,000 bonds May 7, addnl. water transmission mains, Vic Tracy Reservoir. CD 4/18.

Conn., Groton—Borough, Borough Hall, Groton, water filtration plant of municipal W. W., Poquonock Bridge. $125,000.

Iowa, Clarinda—City, City Hall, water sys. addn. $400,000. Burns & McDonnell Eng. Co., P. O. Box 7088, Kansas City, Mo., consult. engr. CD 7/7/55.

▲ **Tex., Midland**—City, City Hall, WW. $1,900,000. Freese & Nichols, 407 Danciger Blvd., Fort Worth, consult. engrs. CD 4/2.

Tex., Temple—City, City Hall, water filtration plant, $500,000; water mains, $315,000; elevated water storage, $75,000; water distr. sys. rehabilitation, $110,000; Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

SEWERS, WASTE DISPOSAL

▲ **Ariz., Phoenix**—City, City Hall, voted bonds May 7, sanitary and storm sewers, $14,000,000. CD 4/2.

▲ **Mich., Pontiac**—City, Ada R. Evans, clk., defeated bonds May 20, sewage disposal plant and treatment facilities. $2,637,000. CD 3/13.

N. Y., Rouses Point—Village, Village Hall, intercepting sewers and sewage treatment plant. $446,580.

Pa., Marcus Hook—City, City Hall, voted bonds May 21, sewage treatment plant and sanitary sewerage sys. $490,000.

Tex., Farmers Branch—City, City Hall, sanitary sewers, $100,000; open and closed drainage, $100,000. Joe J. Rady & Co. 511 Insurance Bldg., Fort Worth, consult. engrs.

Tex., Houston—Golden Acres Water Dist., c/o C. W. West, 2603 Lily, or c/o Harris Co., Comrs., Court, Courthouse, sewage disposal unit, $125,000; sanitary sewer lines, $300,000.

▲ **Tex., Midland**—City, City Hall, sanitary sewers, $1,000,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 4/2.

Tex., Temple—City, City Hall, sewage disposal unit, $150,000; sanitary sewer lines, $600,000; storm sewers, $150,000.

▲ **Wash., Hoquiam**—City, City Hall, drainage and pollution control project, $1,500,000, C. E. Green & Assocs., Henry Bldg., Portland, Ore., consult. engrs. CD 5/1.

BRIDGES

▲ **Calif., Palo Alto**—City, c/o Clerk, City Hall, voted bonds May 14, subway underpass linking Page Mill Rd. and Oregon Ave. $2,100,000. CD 4/5.

N. Y., New York—President, Bronx Boro, Bronx County Bldg., 851 Grand Concourse, reconstr. bridge over Bronx River at E. 177 St., Proj. PX-109, $270,000. To go ahead in 1957.

N. Y., New York—President Manhattan Boro, Municipal Bldg., Zone 7, rehabilitation of Riveside Dr. Viaduct, St. Clair's Pl. to 135 St., Project PM-7, $750,000. To go ahead in 1960.

(Continued on page 154)

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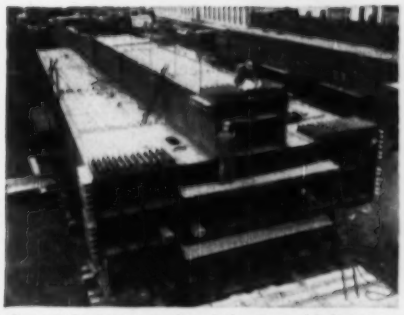
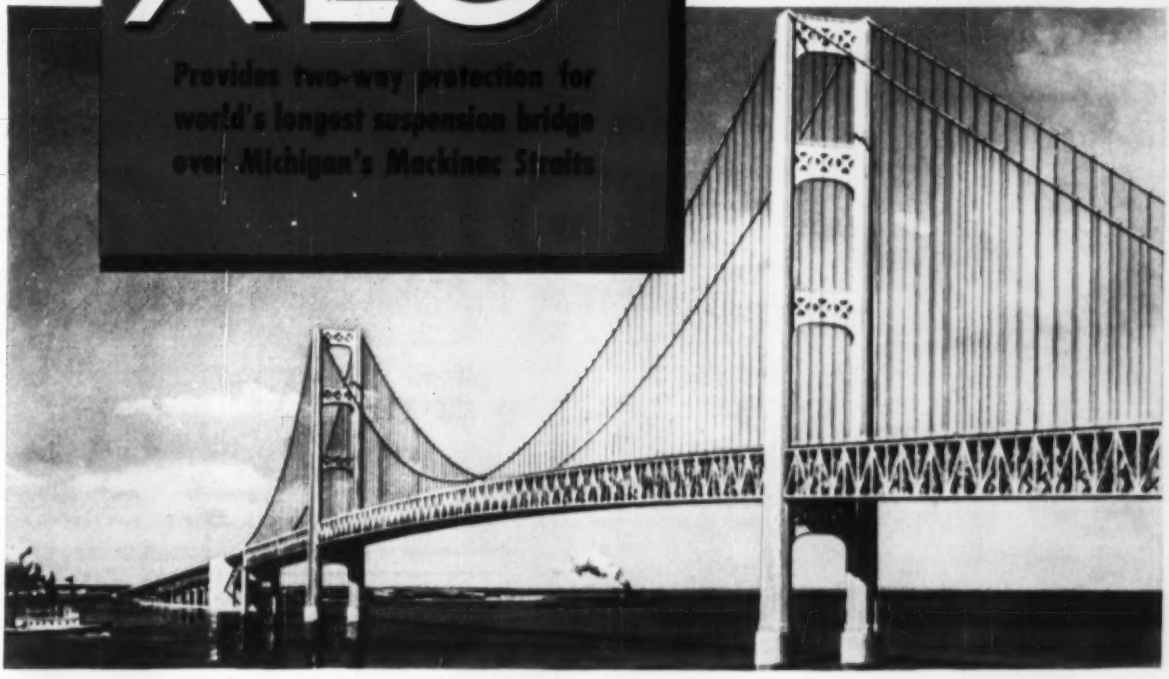


One of the tower sections being assembled at Ambridge Plant of the American Bridge Division, United States Steel Corporation.



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(Continued from page 152)

STREETS AND ROADS

▲ **Ariz., Phoenix**—City, City Hall, voted bonds May 7, street imprvs. $6,000,000. CD 4/2.

▲ **Ark., Little Rock**—Little Rock Waterworks Comn., City Hall, (3) relocation 6¼ mi. unpaved Pulaski Co. Rd. between Roland Rd. and State Hy. 113, (2) relocation State Hy. 113 for ½ mi. west of Crossroads; (1) relocation 6½ mi. State Hy. 10 between Worthen Creek and Bingle Creek, $900,000. Max A. Mehlburger, Pyramid Life Bldg., consult. engr., CD 1/12/56, under Water Supply.

Conn., New Milford—Town, reconstr. 1.3 mi. Dodd Cross and Pickett District Rds. $160,000. CD 5/23/56.

Kan., Coffeyville—City, City Hall, b. conc. resurf. 95 blocks of streets. $200,000. Fred Kramer, city engr. CD 4/4.

N. J., Camden—Bd. Freeholders, Camden Co., City Hall, River Rd. resurf. $256,000. Funds voted.

▲ **O., Kettering**—City, City Hall, street imprvs. for next 5 years, incl. 20 mi. complete street rebuilding; and partial rebuilding 67 mi. streets. $2,240,000.

Tex., Farmers Branch—City, City Hall, street imprvs., $100,000. Joe J. Rady & Co., 511 Insurance Bldg., Fort Worth, consult. engrs.

QUEBEC—Provincial Roads Dpt., Parliament Bldgs., Quebec City,

LaTuque and Lac Long—opening of 10 mi. road. $200,000.

EARTHWORK, WATERWAYS

N. Y., New York—President, Bronx Boro., Bronx County Bldg., 851 Grand Concourse, reconstr. retaining wall, Sheridan Ave., south of E. 156 St., Proj. PX-120, $222,500. To go ahead in 1957.

Wash., Edmonds—Port of Edmonds, dredging and breakwater for small boat basin. $550,000. Work may start next year. J. H. Reid, Edmonds, consult. engr. CD 11/1/54.

AIRPORTS

▲ **Ariz., Phoenix**—AIRPORT—City, City Hall, voted bonds May 7, airport imprvs. $5,000,000. CD 4/2.

Mo., St. Louis—PARKING FACILITIES—City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12th Blvd. and Market St., parking facilities at Lambert-St. Louis Municipal Airport, St. Louis County, $245,000. Sverdurp & Parcel, Inc., 915 Olive St., consult. engrs. CD 6/28/55.

LATIN AMERICA

Mexico, Leon—Asociasion de Cosecheros de Papa de Guanajuato, Leon Guanajuato, plans potato products factory, $500,000.

U. S. POSSESSIONS

▲ **Hawaii, Honolulu**—HOTEL—Waikiki Development Co., (Clint Murchison, 1201 Main St., Dallas, Tex. and Paul W. Trousdale, 650 N. Sepulveda Blvd., Los Angeles, Calif.), plans by Wimberly & Cooke, Honolulu, 20 story hotel with swimming pool. $10,000,000. CD 6/29/54.

PUBLIC BUILDINGS

▲ **Ariz., Phoenix**—CITY HALL, etc.—City, City Hall, voted bonds May 7, city hall, police compound, library addn. $5,200,000. CD 4/2.

▲ **Calif., Carmichael**—SCHOOLS—San Juan Union High School Dist., c/o Supt., 2919 Fair Oaks Blvd., voted $2,500,000 bonds May 17, for Bella Vista High School, Encina High School, and unnamed high school at Edison Ave. and Becerra. $8,000,000. CD 2/26.

Calif., Huntington Beach—ARTS AND SCIENCE—Huntington Beach Union High School Dist. plans by Allison & Rible, 3670 Wilshire Blvd., Los Angeles, 1 story, rein.-con. 21,000 sq. ft., arts and science bldg. Huntington Beach Union High School. $450,000. CD 10/22.

▲ **Calif., Los Angeles**—ENGINEERING BLDG.—UCLA, 405 Hilgarde St., plans by Stanton & Stockwell, 627 S. Carondelet St., 4 story with penthouse, rein.-con., brick veneer engineering physical sciences bldg., air-conditioned, UCLA. $3,300,000.

▲ **Conn., Redding**—SCHOOL—Bd. Educ., voted bonds May 11, Regional Junior-Senior High School. $1,500,000.

▲ **Conn., Stratford**—SCHOOL—Town, Town Hall, plans by Bannon & Antonuzzi, 2503 Main St., high school, North End, $3,000,000. CD 5/31.

Conn., Wallingford—SCHOOL—Town, Town Hall, plans by Malmfeldt Assoc., 36 Pearl St., Hartford, remodeling 52,000 sq. ft. Lyman Hall High School for Robert Early Junior High School, S. Main St. $345,000. Paul D. Bemis, 36 Pearl St., Hartford, consult. engr. Bids in June. CD 4/19.

Conn., Wallingford—TOWN HALL—Town, Town Hall, plans by Gordon MacMaster, Bethany Mountain Rd., Cheshire, town hall on site of existing town hall. $400,000. CD 12/13.

Fla., Sarasota—SCHOOL—Bd. P. Instruction, Sarasota Co., Court House, plans by Paul Rudolph, 1356 Main St., Sarasota Senior High School "A", Swift and Ashton Rd. $500,000.

Idaho, Lewiston—SCHOOLS—School Bd., Lewiston, 2 Junior High Schools. $650,000 each. Work next year.

▲ **Ill., Chicago**—MEDICAL—City, City Hall, 3 story, bsmnt., brick medical bldg., at House of Correction, 28th and California Ave. $1,000,000. CD 12/14/51.

▲ **Ind., South Bend**—HOUSING—South Bend Housing Auth., 1727 Bader St., plans by Andrew Toth, 2158 Portage Ave., South Bend, 20 housing units, 6 story 102-unit apartment and twelve 2 story buildings for Maggies Court Housing Project, South of Western Ave. between Taylor and Scott Sts. $2,300,000.

▲ **Mich., Pontiac**—HOSPITAL—City, Ada R. Avans, clk., defeated bonds, Pontiac General Hospital addn., West Huron St. $1,500,000. Leo J. Heenan, 15 Carlton Court, archt. CD 3/14.

Minn., Aitkin—SCHOOL—Bd. Educ., K. Laukkanen, clk., voted $485,000 bonds May 21, 9 classroom elementary school addn., etc. $375,000. Fasth, Hillstrom & Horty, 910 Midland Bank Bldg., Minneapolis, archts. CD 5/7.

▲ **Minn., Chisholm**—SCHOOL—Bd. Educ., V. Gregarich, clk., voted $1,050,000 bonds May 21, new school, equipping, etc. $800,000. (constr.) T. J. Shefchick, 307 Lonsdale Bldg., Duluth, Minn., archt. CD 5/17.

▲ **Minn., Ely**—SCHOOL—Bd. Educ., Isabel F. Koshi, clk., plans by Jyring & Whiteman, Hibbing, elementary school and a connecting bldg. to house Junior College. $1,500,000. CD 5/17.

▲ **Minn., Excelsior**—SCHOOL—Bd. Educ., Minnetonka School Dist. No. 7, K. Libbey pres., voted $1,500,000 bonds May 21, three 1 story 12 classroom elementary schools.

Minn., Welcome—SCHOOL—Bd. Educ., Independent School Dist. No. 89, R. Rosenburg, clk., voted $390,000 bonds May 21, school bldg. Haarstick, Lundgren & Assocs, No. 212 1st National Bank Bldg., St. Paul, archts. CD 5/20.

Mo., Chillicothe — COTTAGE, etc. — Missouri Training School for Girls, Chillicothe, plans by Swanson, Terney & Brey, 216 E. 10th St., Kansas City, Mo., cottage, $200,000. and Hyde School Bldg. $100,000.

Mo., Nevada—HOSPITAL—State of Missouri, Ralph McSweeney, dir. Bldgs., Jefferson City, plans by Voskamp & Slezak, 18 E. 11th. St., Kansas City, Mo., mental hospital addn. $750,000.

Mo., St. Joseph—BAKERY & STORAGE BLDG., etc.—Missouri State Hospital No. 2, Dr. Orr Mullinax, supt., plans by Eckel & Aldrich, Corby Bldg., two wards in Bldg. 20, bakery and storage bldg., and storage for combustibles, $310,000.

Mo., Sweet Springs—SCHOOL—Bd. Educ., Sweet Springs defeated bonds Apr. 30, high school $560,000. K. O. Von Achen & Assocs., 1200 W. 39 St., Kansas City, Mo., archts. CD 4/26.

Mo., Tipton—PRISON—State of Missouri, Ralph McSweene,y, dir. Bldgs., Jefferson City, plans by Cooper, Robinson, Carlson & O'Brien, Commerce Trust Bldg., Kansas City, Mo., womens prison. $950,000. CD 5/17.

▲ **Neb., Lincoln**—STUDENT UNION—University of Nebraska, 12 and R Sts., Lincoln, plans by A. A. Daly Co., Insurance Bldg., Omaha, student union bldg. $1,850,000.

N. J., Maplewood — FIREHOUSE-LIBRARY — Twp. of Maplewood, Village Hall, preliminary plans by Ray Peck, 1 Park Dr., Westfield, and Wm. Lehman, 972 Broad St., Newark, firehouse-library. $350,000.

▲ **N. J., Woodbury**—SCHOOL—Deptford Twp. School Bd. Woodbury, Junior High School, $750,000; Oak Valley Elementary School. $500,000.

▲ **N. Y., Bellmore**—SCHOOL—Bd. Educ., Bellmore, bond election June 25, elementary school, 10-acre site Shore Rd. and Marine Place. $1,560,000.

▲ **N. Y., Brooklyn**—SANITATION CENTER—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Proj. S-122, Southwest Brooklyn Sanitation Center, Marine Transfer Station and garage for Districts 35, 36, 37 and 38, for Sanitation Dpt. $11,721,400. CD 10/22/48.

▲ **N. Y., Brooklyn**—SANITATION CENTER—Dpt. P. Wks. Municipal Bldg., New York, Zone 7, Proj. S-9, Hamilton Ave. Sanitation Center, incl. incinerator Marine Transfer Station and garage for Districts 30 and 32 for Sanitation Dpt. $10,000,000.

▲ **N. Y., New York**—SCHOOL — Bureau Constr. Bd. Educ., 42-15 Crescent St., Long Island City, Proj. D-422, Junior High School 99, 100 St. and First Ave. $1,100,000. To go ahead after 1957.

N. Y., New York—SCHOOL—Bureau Constr. Bd. Educ., 42-15 Crescent St., Long Island, Proj. E-426, P.S. 128, Audubon Ave. and W. 169 St. $3,110,000. To go ahead after 1958.

▲ **N. Y., New York** — SCHOOL — Bureau Constr. Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-400, P.S. 123, Edgecombe Ave. and 140 St. $3,345,000.

▲ **N. Y., New York** — SCHOOL — Bureau Constr. Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-407, P.S. 144, W. 121 St. west of Lenox Ave. $3,110,000. To go ahead after 1958.

▲ **N. Y., New York** — SCHOOL — Bureau Constr. Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-870, Junior High School No. 171, 103 St. and east of 5 Ave. $1,360,000. To go ahead after 1957.

▲ **N. Y., New York** — SCHOOL — Bureau Constr. Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-595, Junior High School No. 159, 119 St. West of 2 Ave. $1,100,000. To go ahead after 1957.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P.S. 7, E. 119 St. and Lexington Ave., Proj. E-357, $2,780,000. To go ahead in 1957.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P. S. 28, St. Nichols Ave. and W. 156 St., Proj. E-402, $3,010,000. To go ahead after 1958.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P. S. 62, Morningside Heights Area, Proj. E-424, $2,500,000. To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P.S. 134, E. Broadway and Grand St., Proj. E-380, $2,870,000. To go ahead after 1958.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P.S. 137, vicinity of LaGuardia Houses, Proj. E-382, $3,100,000. To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P.S. 140, Rivington and Attorney Sts., Proj. E-378, $3,200,000. To go ahead after 1958.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P.S. 780, St. Nichols Ave. and W. 120 St., Proj. E-858, $2,910,000. To go ahead after 1958.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, P.S. 198, E. 96 St. and Lexington Ave., Proj. E-415, $3,110,000. To go ahead after 1958.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Junior High School No. 101, 111 St., west of Lexington Ave., Proj. E-366, $1,360,000. To go ahead in 1958.

N. Y., New York—CHILDRENS COURT—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Proj. PW-165, addnl. stories and alterations to Children's Court Bldg., 137 E. 22 St. $910,000. To go ahead in 1961.

N. Y., New York—PRECINCT STATION HOUSE—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, 24th Precinct Station House, vicinity of 100 St. and Amsterdam Ave., for Police Dept. Proj. PO-66, $798,200. To go ahead in 1957.

† **N. Y., New York**—POST OFFICE—General Services Admin., P. Bldg. Service, General Services Bldg., Wash., D. C., plans by Weschsler & Schimenti, 118 E. 25 St., Zone 10, 3 story post office, 229-49 E. 85 St. $500,000. CD 2/10/50.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 299 Broadway, New York, Zone 7, plans by William Lescaze, 211 E. 48 St., New York, Zone 17, Manhattanville Houses, incl. six 20 story buildings for 1,272 families on site bounded by Broadway, 129 St., Amsterdam Ave. and 133 St., Proj. NYS-74, $24,000,000. To go head in 1958. CD 4/5/55.

O., Cleveland Heights—CITY HALL—City, 2953 Mayfield Ave., Cleveland, Zone 18, bond election Nov. 5, city hall. $800,000. Richard Hawley Cutting & Assocs., 10550 Euclid Ave., Cleveland, Zone 6, archts. CD 11/9.

▲ **O., Cleveland Heights**—SCHOOLS—Ceveland Heights Bd. Educ., 1749 Lee Rd., Cleveland, Zone 18, defeated bonds May 21, high school and remodeling existing school. $6,500,000. CD 2/5.

O., Columbus—PARKING GARAGE—Ohio Dpt. P. Wks., Ohio Depts. Bldg., plans by Tyler, Martin & Roth, 115 N. University St., Cincinnati, first unit campus parking garage, Ohio State University, $795,000.

▲ **O., Dover**—SCHOOLS—Dover Bd. Educ., Dover, bond election Nov. 5, schools. $1,100,000. Fulton, Dela-Motte & Assoc., 6014 Euclid Ave., Cleveland, Zone 3, archts. CD 11/14/55.

O., Struthers—SCHOOLS—Bd. Educ., Struthers, $850,000. bond election Nov. 5, 2 grade schools, gymnasium addns. to 2 present schools. Arsene Rousseau, 2400 Market St., Youngstown, archts. CD 12/13/54.

▲ **Pa., Abington**—SCHOOL—Abington Twp., Abington, voted bonds May 21, school constr. $2,500,000.

▲ **Pa., Jersey Shore** — SCHOOL — Jersey Shore Area Joint School Auth., Jersey Shore, plans by Hunter, Campbell & Rea, 5 Ave. and 36 Sts., Altoona, Joint Senior High School. $1,300,000.

▲ **Pa., Phila.**—HEALTH CENTER—Dpt. Procurement, City Hall Annex, Proj. No. 53, Blockley Division Health Center addns. $1,020,200. Constr. 1962.

▲ **Tex., Odessa** — SCHOOLS — Ector Co., Independent School Dist., c/o Dr. Kirk, supt., voted bonds May 18, school imprvs. incl. high school and 2 elementary schools. $4,400,000. Wilson, Patterson & Assocs., 601 Bailey St., Fort Worth, archts. (high school only). CD 1/2.

▲ **Utah, Roy**—INFIRMARY—Bd. Comrs. Weber Co., City-County Bldg., Ogden, voted $1,500,000 bonds May 21, infirmary. Keith W. Wilcox, 427 Keisel Bldg., Ogden, archt. CD 4/29.

Wash., Bellevue—SCHOOL—School Dist. 405, Woodridge Elementary School, $487,678. CD 5/4.

▲ **Wash., Tacoma**—SCHOOL—Franklin Pierce School Distr. 402, S. 112 and Portland, voted $485,000 bonds May 21, Junior High School. $1,000,000. Bids to be called this year. CD 4/30.

Ont., Hamilton—SCHOOL—Hamilton Bd. Educ., City Hall, plans by Prack & Prack, 310 Main St. E., suburban high school. $500,000.

COMMERCIAL BUILDINGS

▲ **Ala., Huntsville**—CLUBHOUSE, etc.—Community Country Club, Huntsville, plans by W. R. Dickson,

(Continued on page 158)

Three LIMA Type 1250-SC Cranes owned by a major steel company are shown setting a girder for an overhead crane at a new open hearth furnace. Crane booms are 90 ft. long. The total lift, including equalizer beam, is 150 tons.

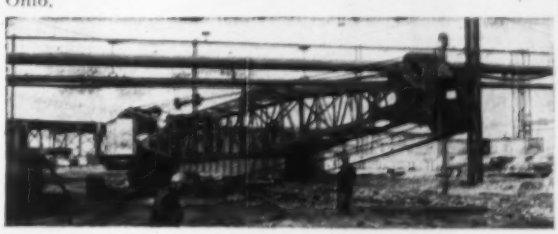
BRUTE STRENGTH FOR THE BIG JOBS

LIMA Type 1250-SC, 100-ton capacity on a 60′ boom at 13′ radius

You get all the muscle you need for almost any lifting job with the LIMA Type 1250-SC. There's reach aplenty, too, for it will swing a 200-ft. boom and 50-ft. jib with ease, hoisting steel and concrete to the top of a 24-story building.

The major functions of the Type 1250-SC are controlled through air-actuated clutches that are so smooth in operation that loads can be lifted and placed with pin-point precision. And, although the 1250-SC is in the heavyweight class, it can be knocked down for haulage into units of less than 60,000 lbs. Side frames and counterweight segments are easily removed and the gantry can be folded to a height of 12 ft., 7¼ in. for convenient job-to-job transportation. It is equipped with crawlers 16 ft., 10 in. wide and 20 ft., 7½ in. long for maximum stability. Diesel or electric power—with torque converter optional—is available.

Find out more about this stalwart machine from your nearby LIMA distributor. Or write to Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.



Gantry is power-raised and power-lowered by means of boom hoist cable with the result that the crane boom can be quickly lowered to permit traveling under low clearances.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

LIMA SHOVELS • CRANES DRAGLINES • PULLSHOVELS

BALDWIN BLH LIMA-HAMILTON

BALDWIN-LIMA-HAMILTON
Construction Equipment Division—LIMA WORKS

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New, exclusive cab-forward design

One of 9 reasons why contractors find International Trucks cost least to own!

Compact, new cab-forward INTERNATIONAL Trucks feature *low*, full-size cabs for convenient access to save drivers time and effort . . . short turning radius with bumper clearance for easier maneuvering even in tightest quarters.

These new INTERNATIONALS have more powerful engines in every model—more *usable* power at low rpm to keep operating and maintenance costs low. They haul bigger legal loads with improved weight distribution, with less over-all length.

As you would expect, new cab-forward INTERNATIONALS are quality-built from the rugged bumpers to the end of the sturdy frames . . . built to do a truck job better, longer, for less.

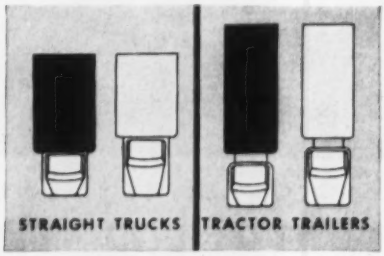
And INTERNATIONAL Trucks cost *least* to own—cost records prove* this. Let your INTERNATIONAL Dealer show you today.

**Signed statements in our files, from fleet operators throughout the U.S., back up this statement.*

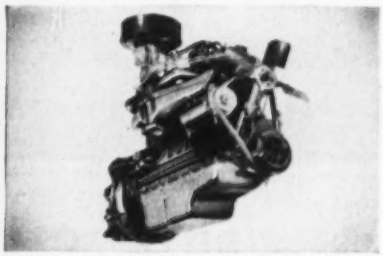
INTERNATIONAL HARVESTER COMPANY, CHICAGO

Motor Trucks • Crawler Tractors
Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors

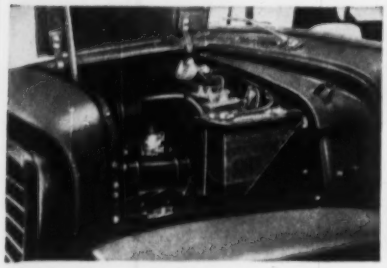
1 Longer legal payloads with ideal 89-inch bumper-to-back-of-cab dimension. Full size, unobstructed cab has 61-inch full-width seats, no wheelhousings. Only 3¼ inches higher than conventional models. Easier, more convenient entry and exit.



2 Bigger payloads with better weight distribution. More load space than conventional trucks with same over-all length—or the same load space with shorter over-all length. Easier to drive and maneuver. Safer, too, with better all-around vision.

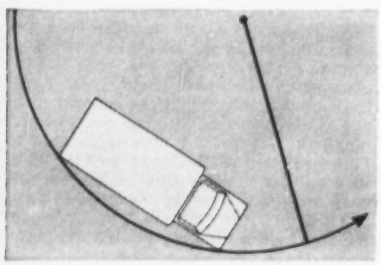


3 Lively, low cost performance with INTERNATIONAL-built engines that produce more *usable* horsepower at low rpm. Higher compression ratios for greater efficiency and economy. 12-volt ignition with "hot spark" circuit. Engines for every job.



4 Superior engine accessibility saves time and money. Large side opening hood permits complete freedom to all engine compartment components. Master cylinder, battery and most frequently serviced units are conveniently located.

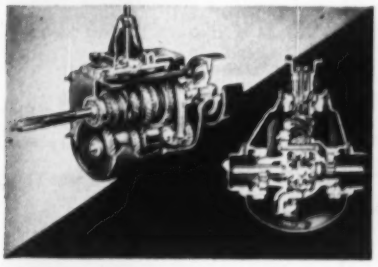
5 Low first cost. New INTERNATIONAL cab-forward models are priced right down with the lowest. They are quality-built throughout to keep operating and upkeep expense at rock bottom. Result: they are built to cost *least* to own over the years.



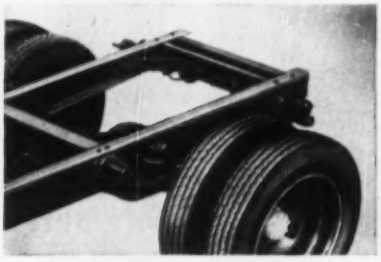
6 Minimum front overhang and true geometric steering for short turning radius with bumper clearance. Cam and roller-mounted twin lever gears are mounted ahead of the front axle. Comfortably positioned four-spoke, safety steering wheel.

New INTERNATIONAL cab-forward design . . . shown here is the Golden Anniversary model ACF-182 six-wheeler. Better weight distribution with short 96-inch bumper-to-back-of-cab dimension. More *usable* power in every model.

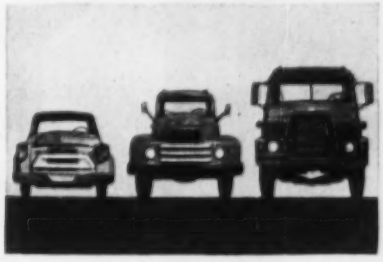
Other new cab-forward INTERNATIONALS from 9,000 lbs. GVW including 4-wheel and all-wheel-drive haulers. You name the construction job . . . INTERNATIONAL builds the trucks that will do it better, longer, at *least* cost.



7 Choice of transmissions and rear axles assures you the proper capacity and final drive ratios to match the engine power, your load and road conditions *exactly*. You save on fuel. You get superior on-the-job performance and extended truck life.



8 Steel-Flex frames combine great strength without excess weight. Non-crystallizing cold squeezed rivets are used throughout for extra rigidity and proper flexibility. Factory-built drop-frame models are available to reduce loading time and effort.



9 World's most complete line. There is an INTERNATIONAL "tailor-made" for every truck job, ½-tonners to 96,000 pounders. Choice of 4-wheel, 6-wheel and all-wheel-drive models, conventional and COE design. Every one built to cost *least* to own.

(Continued from page 154)

Huntsville, clubhouse, pool, tennis courts play parks, $1,000,000.

▲ **Conn., New Canaan**—CHURCH, etc.—St. Mark's Episcopal Church, 117 Oenoke Rd., plans by O'Connor & Kilham, 101 Park Ave., New York, N. Y., church and parish house, $1,500,000. Bids in June. CD 5/17/56.

▲ **Conn., Wallingford**—HOSPITAL UNITS—Gaylord Farm Sanatorium, Wallingford, plans by Helge Westerman, 41 E. 42 St., New York, N. Y., two hospital units. $1,500,000. CD 5/2.

Conn., West Haven—APARTMENT—Dr. Jacob Saposnik Et Als., 610 Campbell Ave., 76-unit 2 story garden type apartment, 142 Main St. $800,000.

▲ **Conn., Wetherfield**—HOUSES—Charles Schnier, 18 Raymond Rd., West Hartford, 100 houses, Jordan Lane, $1,000,000.

Ky., Lexington—MOTEL—E. P. Grigsly, Martin, plans by H. L. Drake, 421 2nd St., Huntington, W. Va., 1 and 2 story, 250x22 ft. concrete slab on grade, brick Colonial, 30 unit motel. $500,000.

Mass., Beverly—SHOPPING CENTER—Star Market Co., 297 Walnut St., Newtonville, plans by Campbell & Aldrich, 38 Newbury St., Boston, shopping center, supermarket, shops, Rts. 1A & 128. $350,000. Constr. 1957.

Mass., Dedham—MOTEL—Owner, c/o Brookwood Assoc., designers, 115 Sycamore St., Holbrook, motel, Rts. 1 & 128. $350,000. Constr. 1957.

Mass., Framingham—SCHOOL—CONVENT, etc.—St. Tarsisius Parish, Rev. Silvio Sartoni PSSC-12, Waverly Court, plans by Chester F. Wright, 681 Main St., Waltham, school, convent and gymnasium. $500,000. Constr. 1958.

▲ **Mass., Jamaica Plain**—APARTMENT HOUSE—Jamaicaway Hotel Inc., James W. Carpenter, pres., c/o Bedford Motel, North Rd., Bedford, plans by Edward F. Aliodi, 215 Leroy Ave., Darien, Conn., apartment house, 100-125 apartments, Perkins St. and Jamaicaway, $1,000,000.

▲ **Mass., Medford**—ENGINEERING—Tufts University, Dr. Nels Y. Wessel, pres., plans by Arland A. Dirlam, 739 Boylston St., Boston, engineering bldg. $1,500,000. Constr. 1958.

Mass., Worcester—SCIENCE—Clark University, 950 Main St., plans by G. Adolph Johnson, Inc., 340 Main St., Worcester, and Hoyle, Doran & Berry, consult. archts., 248 Boylston St., Boston, science bldg. $800,000. CD 9/26.

Neb., Omaha—TRAINING—St. Catherines Hospital, 9 and Forest Ave., plans by L. A. Daly Co., Insurance Bldg., 5 story nurses training bldg. $500,000. Bids in July. CD 1/19/56.

N. J., Watchung—HOTEL—George Mauro, Somerset St., colonial style hotel to replace Washington Hotel on Somerset St. $400,000.

▲ **O., Akron**—SCHOOL, etc.—Annunciation Church, 77 Broad St., school, gymnasium, rectory and convent Broad and Kent Sts. $1,000,000.

▲ **O., Canton**—HOUSING—Scenic Hills Development Co., E. J. Plott, pres., 3004 Woodridge Dr., 104 homes, 41 St. South. $2,000,000.

O., Columbus—HOSPITAL—Mercy Hospital, 1430 S. High St., plans by Curtiss Inscho, 60 E. Broad St., 3 story, brick hospital addn. $381,000. CD 9/19, under Public Buildings, Franklin Co. Comrs. as owner.

▲ **O., Mayfield Heights**—HOMES—FEINER Homes, Inc., 18302 Harvard Ave., Cleveland, Zone 22, 300 homes, 135-acre site on Gates Mills Blvd., $10,000,000.

▲ **Pa., Chester**—HOSPITAL—Sacred Heart Hospital, 9 and Wilson Sts., plans by Henry D. Dagit & Sons, 1329 Race St., Phila., general hospital. $3,400,000.

Pa., Glenolden—SHOPPING CENTER—Eric Corp., 1529 Chestnut St., Phila., plans by Sydney Jelinek, 207 S. 24 St., Phila., shopping center, incl. 5 stores, bank and parking area. $344,000.

Pa., Norristown—HOSPITAL—Sacred Heart Hospital, Norristown, plans by George E. Yundt, 125 S. 6 St., Allentown, hospital addns. $344,000. Bids soon.

Pa., Phila.—STUDENT ACTIVITIES—Drexel Institute of Technology, 32 and Chestnut Sts., plans by Baader, Young & Schultze, 1500 Walnut St., student activities bldg. $900,000. CD 12/1/47.

Pa., Phila.—HOME—Lutheran Home for Aged & Orphans, 6950 Germantown Ave., home remodeling and modernization. $750,000.

Pa., Plymouth Valley—CHURCH, etc.—Epiphany of Our Lord R. C. Church, Plymouth Valley, plans by Peter F. Getz, 44 S. Lawrence Ave. Lansdowne, church and school. $344,000. Thomas J. McCormick, 123 S. Broad St., Phila., consult. engr.

▲ **Tex., Amarillo**—HOTEL—Corrigan Properties, Inc., c/o Amarillo Chamber of Commerce Hotel Comn., 400-room masonry hotel. $4,000,000.

Tex., Grand Prairie—SHOPPING CENTERS—Aubra Sharp, Developer, Grand Prairie, or c/o Dean I. Dauley, city mgr., Grand Prairie, (formerly of Flint, Mich.) shopping center, Freetown and South Belt Line Rds., 65-acre tract, $550,000; shopping center, 15-acre tract, Belt Line Rd. at March St. $350,000.

Tex., Houston—CHURCH—Memorial Drive Presbyterian Church, 11612 Memorial Dr., plans by Mackie & Kamrath, 2713 Ferndale St., church expansion, $375,000.

▲ **Tex., Houston**—HOTEL—Shamrock-Hilton Hotel, c/o Hilton Center, plans by Hedrick, Stanley & Lightfoot, archts.-consult. engrs., 5201 Fannin Bldg., 400-600 addnl. rooms. $3,000,000-$6,000,000.

Tex., Lubbock—NURSES HOME—Lubbock Methodist Hospital, (subsidiary of Northwest Texas Conference of Methodist Church) c/o Great Plains Life Bldg., plans by Haynes & Kirby, 1902 Dixie Dr., 2 story nurses home. $385,000. CD 5/3.

Va., Arlington—BANK—First National Bank of Arlington, 249 N. Glebe Rd., plans by John M. Walton & Assoc., 2049 N. 15 St., bank, Glebe Rd. and Wilson Blvd. $450,000. Bid in August.

▲ **Wash., Spokane**—CLUB—Y.M.C.A. W-827 First St., plans by Whitehouse, Price, DeNeff & Deeble, Hutton Bldg., 9 story rein.-con. club bldg. $2,000,000. CD 12/23/54.

▲ **Alaska, Anchorage**—CLASSROOMS, etc.—Alaska Methodist College, Anchorage, plans by Manley & Mayer, Anchorage, 6 classrooms bldgs., library, chapel gymnasium, dormitories and married students' housing for college. $5,000,000. Work to start this summer on utilities. CD 3/30/55.

▲ **Ont., Toronto**—APARTMENT—Avenue Road Ltd., c/o Vasis Real Estate, realtor, 872 Bloor St. W., 12 story, 124-suite apartment, 103 Avenue Rd. $1,500,000.

INDUSTRIAL BUILDINGS

▲ **Calif., Pleasanton**—REACTOR—General Electric Co., River Rd., Schenectady, N. Y., 30 megawatt test reactor addn. at Vallecitos Atomic Laboratory. $10,000,000.

Conn, Meriden—PLANT—Guida-Seibert Dairy, 433 Park St., New Britain, milk and milk products processing plant, North Broad St. $250,000.

Conn., Milford—FACTORY—Edgcomb Steel of New England, Inc., 950 Bridgeport Ave., plans by Leo F. Caproni, 132 Temple St., New Haven, 60 x 280 ft., concrete block, steel frame factory for fabrication of steel bars, and other metal products, New Haven Ave. $750,000.

▲ **Conn., Montville**—PLANT—Olin-Mathieson Chemical Corp., 275 Winchester Ave., New Haven, nuclear fuel cores assembly plant, $1,000,000.

Conn., New Haven—MANUFACTURING—Bradley Coats, Inc., 102 Hill St., plans by Eban B. Woolley, Red Root Lane, Milford, 1 story, 54x111 ft., cinder block, brick veneer women's apparel mfg. bldg., New Boulevard Industrial Park. $103,140. CD 5/2.

Conn., New Haven—FACTORY—New Haven Fur Co., Inc., 103 Meadow St., plans by Eban Woolley, Red Root Lane, Milford, 1 story, 54x111 ft., cinder block, brick veneer fur products factory, New Boulevard Industrial Park. $120,000. CD 3/29.

Del., Newark—WAREHOUSE—Continental Diamond Fibre Co., Newark, warehouse, $250,000.

Ind., Lafayette—BOILER HOUSE—Aluminum Co. of America, Box 500, Lafayette, 50x60 ft., steel rein.-con., masonry boiler house exten. $100,000. Wm. W. Lance, 3053 Grassmere Ave., Pittsburgh 16, Pa., engr.

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▲ **Md., Halethorpe**—BREWERY—Carling Brewing Co., 9400 Quincy Ave., Cleveland 6, O., brewery, 40 acre site near Halethorpe, instead of in Baltimore, $12,000,000.

Neb., Omaha—TRUCK SERVICE—International Harvester Co., 180 N. Michigan St., Chicago, Ill. truck service bldg., 20 and Paul Sts. $150,000.

▲ **O., Trotwood**—FACTORY—Globe Industries, Inc., Max Isaacson, pres., 1784 Stanley Ave., Dayton, 1 story, 100,000 sq. ft. factory, incl. office space 63-acre site, Wolf Creek Pike and Olive Rd. $1,000,000.

Okla., Lawrence—PLANT—Warren Petroleum Co., National Bank of Tulsa Bldg., Tulsa, natural gasoline plant in Leverne gas field, $500,000.

Pa., Bridgeport—WAREHOUSE, etc.—Bethlehem Steel Co., E. 2 St., Bethlehem, warehouse, shops, processing plant and office, $1,000,000.

Pa., Chester—WAREHOUSE, etc.—Penna. Industrial Chemical Corp., Delaware Ave. and Jeffrey St., warehouse and factory, $250,000. J. N. DiCicco, c/o owner, engr.

▲ **Pa., Frazer**—FACTORY, etc.—J. Bishop Co., Malvern, factory and office addns., alterations, $1,000,000.

▲ **Pa., Phila.**—BUS GARAGE, etc.—Philadelphia Transportation Co., 1405 Locust St., bus garage and carhouse, $2,000,000.

Pa., Pottsville—FACTORY—Phillips Jones Corp., Pottsville, plans by Philip Knoblach, Pottsville, factory. $300,000.

S. D., Aberdeen—GARAGE, etc.—Lust Chevrolet Co., 622 6th Ave. S. W., garage, service and display bldg. $150,000.

Tex., Corpus Christi—WAREHOUSE—McCormick Steel Co., 1110 Lockwood St., Houston, branch warehouse. $160,000.

Tex., Houston—WAREHOUSE—Tom C. Mabray & Co., c/o Texas Natl. Bank Bldg., warehouse, Produce Row, $150,000. Ansul Chemical Co., lessee.

Tex., San Antonio—WAREHOUSE—Martin Wright Electric Co., 1001 Navarro St., plans by Atlee B. & Bob M. Ayres, 342 W. Woodlawn, warehouse, 200 Blk. W. Olmes Dr. $100,000.

▲ **Wash., Seattle**—PLANT—Bethlehem Pacific Coast Steel Corp., 3631 E. Marginal Way, steel plant addns., $1,250,000. Work to begin soon. M. Barr & Assocs., Lloyd Bldg., Zone 1, consult. engrs. CD 1/4.

▲ **Ont., Windsor**—PLANT—Hiram Walker & Sons Ltd., 2067 Sandwich St. E., bottling plant in distillery expansion program, $5,000,000.

UNCLASSIFIED

Ala., Phil Campbell—GAS SYSTEM—Town, Town Hall natural gas sys. for town area between Bear Creek and town, $150,000.

▲ **Ariz., Phoenix**—PARKS, etc.—City, City Hall, voted bonds May 7, parks and playground, $4,800,000. CD 4/2.

Connecticut—STATE PARK—State Park & Forest Comn., 314 Washington St., Hartford, state park, at Bluff Point, Groton, $500,000.

Conn., Groton—TRANSFORMER, etc.—Borough, Borough Hall, transformer and relocation of Trail's Corner sub-station of Municipal Electric Works. $125,000. CD 5/19/49.

Conn., Waterbury—PARK DEVELOPMENT—City, City Hall, park development, incl. playground at Sunrise Park, $100,000. Henry C. Whitlock, city engr. CD 1/31/46.

▲ **Louisiana**—GAS PIPE LINE—Arkansas Louisiana Gas Co., Slattery Bldg., Shreveport, 300 mi. natural gas pipe line from area Morgan City to northwestern Louisiana around Shreveport. $9,000,000.

Mass., Newton Upper Falls—TRANSMITTER BLDG.—W. H. D. H. TV Channel 5-6 St. James Ave., Boston, plans by Leland, Larsen, Bradley & Hibbard, 711 Boylston St., Boston, transmitter bldg. $100,000.

Missouri—RURAL ELECTRIC TELEPHONE SYSTEM—Hartville Telephone Co., O. K. Fure, pres. and mgr., imprvs. and exten. to rural electric telephone sys. in Wright Co., incl. 224 mi. line and dial exchange and office bldg. in Hartville. $246,000.

▲ **Nebraska and Iowa**—TRANSMISSION LINES—Omaha Public Power Co., 17 and Harney Ave., Omaha, Neb. and Iowa Public Service Co., 502 6 St., Sioux City, Iowa, 161,000 volt transmission line from Sioux City, Iowa to Omaha, Neb. $2,600,000. Ebasco Services Inc., 2 Rector St., New York, N. Y., consult. engr. CD 4/8/53.

N. Y., Brooklyn—PLAYGROUND—Dpt. Parks, Arsenal Bldg., New York, Zone 21, development of playground area, Bedford Ave. and S. 9 St. Proj. P-384, $186,000. To go ahead in 1957.

N. Y., Brooklyn—PLAYGROUND—Dpt. Parks, Arsenal Bldg., New York, Zone 21, development of playground area, Caton Ave. between McDonald Ave. and E. 2 St. $204,000. To go ahead in 1957.

▲ **N. Y., New York**—PIER—Dpt. Marine & Aviation, Pier 8, North River, New York, Zone 4, widening Pier 92 at foot of W. 52 St., North River, Proj. D-256, $3,000,000. To go ahead in 1957.

▲ **N. Y., New York**—PIER—Dpt. Marine & Aviation, Pier 8, North River, New York, Zone 4, widen, modernization of Pier 65, North River Proj. D-199, $2,500,000. To go ahead in 1957. CD 2/15/45.

▲ **N. Y., New York**—WHARF, etc.—Dpt. Marine & Aviation Pier 8, North River, New York Zone 4, Proj. D-255, marginal wharf and pier development (3rd Section) Old Ship to Burling Ship, East River, $10,000,000. To go ahead in 1961 and 1962. CD 6/17/45.

N. Y., New York—COMFORT STATION, etc.—Dpt. Parks, Arsenal Bldg., New York, Zone 21, plans by David Levine, c/o owner, 1 story comfort station and playground at 120-140 Emerson Place, $110,000.

N. Y., New York—PARK—Dpt. Parks, Arsenal bldg., New York, Zone 21, recontsr. Fort Tryon Park, Proj. P-411, $297,500.

N. Y., New York—PARK—Dpt. Parks, Arsenal Bldg., New York, Zone 21, Proj. P-380, general rehabilitation of Riverside Park, $543,000.

▲ **N. Y., New York**—PARK RECONSTR.—Dpt. Parks, Arsenal Bldg., New York, Zone 21, reconstr. City Hall Park, incl. subway structures alteration, $1,119,999. CD 8/2/45.

N. Y., New York—PLAYGROUND—Dpt. Parks, Arensal Bldg., New York, Zone 21, Proj. P-416, Thompson St. playground, development of addn. incl. reconstr. park area, $110,500. To go ahead in 1957.

N. Y., New York—MAINTENANCE YARD—President Bronx Boro, Bronx County Bldg., 851 Grand Concourse, maintenance yard for storage of equip. and materials, West Bronx, Proj. PX-5 $630,000. To go ahead in 1957.

Pa., Applebachsville—RACE TRACK, etc.—Haycock Mountain Corp., 5611 N. 3 St., Phila., auto race track and park lake, $100,000.

Pa., Phila.—PLAYGROUNDS, etc.—Dpt. Procurement, City Hall Annex,
Proj. No. 102, Show Tower Playground, $75,000.
Proj. No. 103, playground at Cottage and Unruh Sts., $175,000, Constr. 1962.
Proj. 109, playground Disston Recreation Center addns., alterations, $150,000.
Proj. 110, East Germantown Playground, addns., alterations, $150,000.
Proj. No. 111, Haddington Recreation center addns., alteration, $75,000.
Proj. 112, Belfield Playground addns., alterations, $75,000.
Proj. No. 114, playground, S. Phila. St. site, $400,000.
Proj. 145—Pennypack Park general imprvs., $100,000.
Proj. 147 Memorial Hall Recreation Center addns., alterations, $300,000.
Proj. 154, ice skating rinks at various locations, $150,000.
Proj. 155, Poquessing Creek Park, $375,000.
Proj. 156, zoological garden ape house addns., alterations, $500,000. Construction in 1962. CD 11/5/54.

▲ **Pa., Phila.**—BERTHING—Dpt. Procurement, City Hall Annex, Proj. No. 18, marginal berthing facility, Delaware Ave. south of Packer Ave. $1,865,000. Construction in 1962. CD 12/28/45.

Tex., Midland—PARKS—City, City Hall, parks, $275,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 4/3.

† **Va., Fort Belvoir**—AAA TRAINING FACILITIES—U. S. Eng., 1 and Douglas Sts. N. W., Wash. 25, D. C., plans by Mills, Petticord & Mills, 3308 14 St. N. W., Wash., D. C., AAA training facilities. $100,000-$500,000. CD 7/17/52, under Public Buildings.

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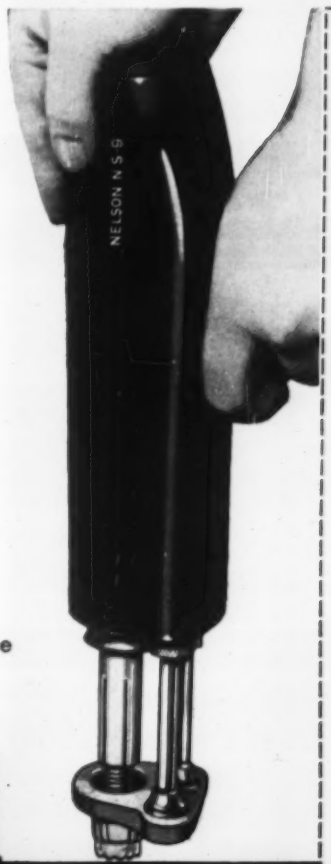

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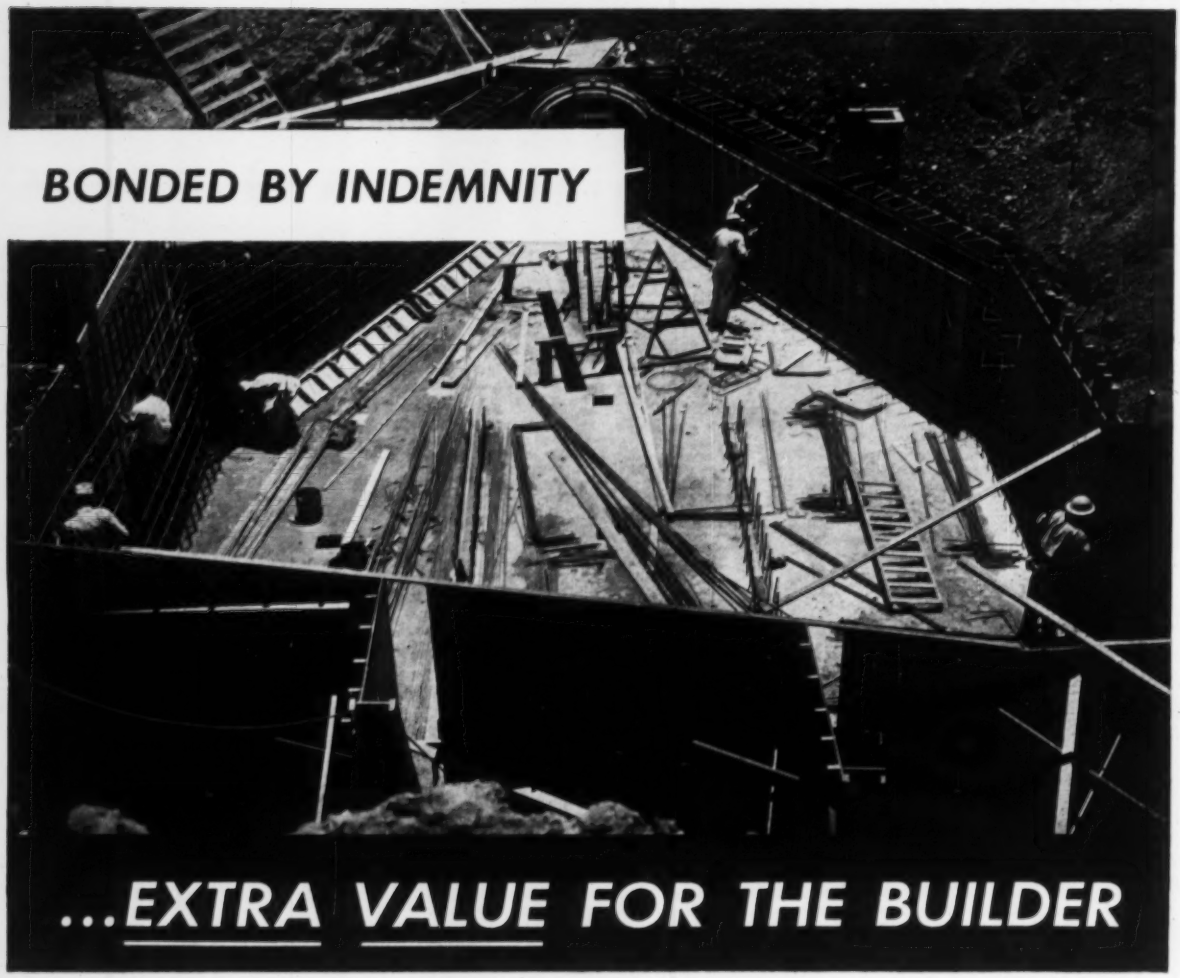

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 24 Connecticut

STREETS AND ROADS

June 18 Massachusetts June 24 Connecticut

HEAVY CONSTRUCTION—LB & CA

▲ **CONNECTICUT**—State Hy. Dpt., 165 Capitol Ave., Hartford, Bids opened 6/3,

Consolidated Builders Inc., Draper Ave., North Attleboro, Mass., LB **$3,356,127** (6 bidders) Proj. 165-66, superstructure and deck for 12-span plate girder bridge over Connecticut River on Hartford-Springfield Expressway, Proj. 165-66, East Windsor and Windsor Locks. CD 5/16.

BUILDINGS—LB & CA

▲ **Green Manor Estates Inc.**, Middle Turnpike West, Manchester, Conn., Owner Builds. **$4,896,500.** 350 HOUSES, 3-acre private recreation park "Green Manorville" Taylor Rd., HAZARDVILLE, CONN. Arnold Lawrence, 571 Porter St., Manchester, Conn., archt.

▲ **Paul Tishman General Contractors Inc.**, 21 E. 70 St., New York, N. Y., CA **$4,562,000.** Proj. BI-K 102, intensive treatment plant, Norwich State HOSPITAL, NORWICH, CONN. State P. Wks. Dpt., 165 Capitol Ave., Hartford, Conn. Bids May 8. CD 5/10, under LB.

▲ **E and F Constr. Co.**, 94 Wells St., Bridgeport, Conn., CA **$3,473,700,** PLANT addn. for engineering and service personnel, laboratory etc., STRATFORD, CONN. Sikorsky Aircraft Div., United Aircraft Corp., N. Main St., Stratford, Conn. CD 2/7.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 18 New Jersey June 21 Pennsylvania
June 27 New York

STREETS AND ROADS

June 18 New Jersey June 21 Pennsylvania
June 27 New York

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany, Bids opened 6/4,

N. Y.—**Bero Construction Corp.**, Waterloo, N. Y., LB **$1,312,869,** est. $1,377,000 (2 bidders) wid'n., resurf. 8.6 mi. sect. of Rte. 19 starting at south corporation line of Wellsville and extending southward to Pennsylvania State Line, existing 18 ft. wide road wid'n., to 24 ft. straightened and resurf. with b. conc. 2 existing bridges between Wellsville and Stannards, Allegany Co.

N. Y.—**Alexander Construction Co.**, Inc., Chester, Pa., LB **$2,799,259.** est. $2,830,000 (2 bidders) wid'n., reconstr. 14.81 mi. section of Rte. 30 starting at Rte. 17 intersection in East Branch land extending generally northeastward through Harvard and Shinhopple to Rte. 206 intersection in Downsville, Delaware Co.

N. Y.—**A. V. Orlando & Edenwald Contracting Cos.**, Whitestone, N. Y., LB **$3,943,230.** est. $5,174,000 (3 bidders), 4.82 mi. 4-lane divided sect. on Penn-Canada Expressway, access roads 2.84 mi. from Arsenal St. (Rte. 3) near west city limits of Watertown generally northeastward to New Military Rd. incl. traffic interchanges at Coffeen St. (Rte. 12F) and Bradley St. (Rte. 12), 5 grade separation structure and 2 bridges, Jefferson Co.

N. Y.—**A. V. Orlando & Edenwald Contracting Co.**, Whitestone, N. Y., LB **$1,796,736.** est. $1,969,000 (8 bidders) reconstr. 7.3 mi. section of Rte. 3, starting at High St. in Natural Bridge and extending generally northeastward toward Harrisville mostly on new imprv. alignment to point just east of county road leading to Bonaparte, incl. constr. near Natural Bridge on new bridge to carry the road over tracks of Carthage Branch of N. Y. Central R. R. and new bridge over Indiana River, Lewis and Jefferson Counties.

N. Y.—**Dalrymple Gravel & Contracting Co., Inc.**, 105 East Chemung Pl., Elmira, N. Y., LB **$4,238,563.** est. $4,239,000 (1 bidder), exten. of existing Parkway Arterial (Route 17) in Corning, from its present western Terminus at Chestnut Point just west of Cutler Creek, 1.79 mi., 4-lane divided b. conc. hy. carrying over the Chemung River and N. Y. Central R. R. on 1,377 ft. long bridge and over Cutler Creek 78 ft. long, Steuben Co. CD 5/15.

▲ **NEW YORK**—State Dpt. P. Wks., The Gov. Alfred E. Smith State Office Bldg., Albany. Bids opened 6/6,

N. Y.—**Schacht Steel Construction Inc.**, New York City, N. Y. LB **$4,399,378.** est. $5,207,000 62-span steel superstructure on high level Fuhrmann Boulevard-Hamburg Turnpike (Route 5) Viaduct over the Union Ship Canal, incl. 1.13 extending from Ridge Rd. in Lackawanna northward to Tifft St. in Buffalo, Erie Co.

N. Y.—Withdrawn for redesign 6/6/57. est. **$2,304,000** superstructure for 3-span 448 ft. steel tied-arch bridge to carry the Penn. Canada Expressway over the western edge of Oneida Lake east of Brewton, incl. 0.17 mi. Oswego Co. CD 5/15 under LB.

BUILDINGS—LB & CA

▲ **Vidoni & Motley**, c/o Alwin Cassens Jr., archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds, **$3,500,000.** 150 HOUSES on tract near Cedar and Larfield Fds., EAST NORTHPORT, N. Y.

▲ **Gibson Homes**, c/o Trylon Realty Co., 98-89 Queens Blvd., Forest Hills, N. Y., Owner Builds, **$3,500,000.** 250 HOUSES on tract on Sunrise Highway, ISLIP, N. Y.

▲ **Sommers Bros. Constr. Corp.**, U. S. Highway 9, Iselin, N. J., Own Forces, **$3,000,000.** 184 HOUSES, Green St. and Montague Ave., ISELIN, N. J.

▲ **Cloister Constr. Co.**, New Providence, N. J., CA Est. **$4,000,000,** 1500 HOUSES on addl. land adjoining 200 homes at Tuckerton Beach, TUCKERTON, N. J. William Pasley, Deerfield Rd., New Providence, N. J. Derick Kipp, 363 Bloomfield Ave. Montclair, N. J., archts.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 18 South Carolina June 19 Virginia
June 21 Tennessee

STREETS AND ROADS

June 18 South Carolina June 19 Virginia
June 21 Tennessee

BUILDINGS—LB & CA

▲ **Henry C. Beck Co.**, First National Bank Bldg., Dallas, Tex., CA **$3,000,000.** 14 story steel colored aluminum and glass PETROLEUM TOWER BLDG., SHREVEPORT, LA. Henry C. Beck Jr. & Assocs., First National Bank Bldg., Dallas, Tex. Hedrick, Stanley & Morey, 904 Ft. Worth Hy., Dallas, Tex., engrs.-archts.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 19 Michigan June 25 Indiana

STREETS AND ROADS

June 19 Michigan

HEAVY CONSTRUCTION—LB & CA

▲ **Cunningham Bros. Inc.**, 3591½ Grand Ave., Beloit, Wis. LB **$6,950,000.** est. $7,600,000 (4 bidders) Contr. No. 7, Mill Creek Sewage Works, CINCINNATI, O. City, City Hall, Cincinnati, O. Bids June 4. CD 5/3.

▲ **ILLINOIS**—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, Bids opened 5/29,

Western Contr. Corp., Sioux City, Iowa, **M. J. Boyle & Co.**, 2480 Elston, Chicago, Ill., **Ryan Constr. Co.**, Evansville, Ind. and **S. A. Healy Co.**, 20 N. Wacker Dr., Chicago, Ill. (jointly) LB **$23,400,760,** Contrs. T-6-B & T-6-C, grading, drainage, paving, appurts., precast concrete, steel bridges 7.6 mi. extencing north of 31st St. to north of Junction of Lake St. (US 20) and North Ave. (Ill. 64), Cook and DuPage Counties. CD 5/3.

▲ **ILLINOIS**—Illinois State Toll Hy. Comn., 20 N. Wacker Dr., Chicago, Bids opened 5/29,

Mayfair Constr. Co., 5660 N. Kedzie Ave., Chicago, Ill., LB **$3,188,635,** Contr. E-1-B, grading, drainage, paving appurts., erecting precast concrete and concrete arch bridges 0.39 mi. west of St. Rte. 31 extending easterly east St. Rte. 25, Kane Co. CD 5/13.

BUILDINGS—LB & CA

▲ **Roediger Constr. Co.**, 1729 Superior Ave., Cleveland, O., CA $5,012,752 (4 bidders) 10 story HOSPITAL Addn. and 2 story MAINTENANCE and LAUNDRY BLDG., CLEVELAND, O. Mount Sinai Hospital, 1800 E. 105 St., Cleveland 6, O. Bids May 10. CD 4/15.

▲ **A. Bentley & Sons Co.**, 1510 Montcalm St., Toledo, O., CA Est. **$4,000,000.** 4 story, 40 x 340 ft. FACTORY addn. east end of Plaskon factory on Glendale Ave. and 100 x 340 ft., factory addn. on west city, TOLEDO, O. Allied Chemical & Dye Corp., Barrett Div., 2112 Sylvan St., Toledo, O. CD 6/8/56.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 20 Kansas June 21 North Dakota

STREETS AND ROADS

June 20, 21 Kansas June 21 North Dakota

▲† Okla., Pryor—FACILITIES—BA 6/26—U. S. Eng., P. O. Box 61, Tulsa, Zone 2, nitro-guanidine facilities (production area), Oklahoma Ordnance Works, ENG-34-066-57-55, $3,000,000-$7,000,000. Extended date. Plans deposit $150. Chemical Constr. Corp., 525 W. 43 St., New York, N. Y. engrs. CD.

HEAVY CONSTRUCTION—LB & CA

▲† **T. R. James & W. R. Aldrich**, Box 147, Alexandria, La., LB **$12,551,182,** est. $2,500,000-$6,000,000 runway, taxiways, aprons, Amarillo Air Force Base, ENG-34-066-57-53, AMARILLO, TEX. U. S. Eng., Box 51, Tulsa 2, Okla. Bids May 22. CD 5/2, under LB.

▲ **N. Mortensen & Co.**, 1021 Westlake Ave. N., Seattle, Wash., CA **$3,523,388,** 200 each of 390-1,410 sq. ft. frame family housing units, Glasgow Air Force Base, ENG-45-164-57-40, GLASGOW, MONT. U. S. Eng., City-County Airpirt, Walla Walla, Wash., Bids May 23. CD 5/29, under LB.

BUILDINGS—LB & CA

▲ **Kraus-Anderson Inc.**, 501 South Eighth St., Minneapolis, Minn., CA approx. **$4,500,000,** 5 story, bsmnt. HOSPITAL, Excelsior Blvd. east of Minnehaha Creek, ST. LOUIS PARK, MINN. Asbury Methodist Hospital, 916 East 15th St., Minneapolis, Minn. Bids Apr. 11. CD 4/17, under LB.

▲ **Henry C. Beck Co.**, c/o 1st. Natl. Bank Bldg., Dallas, Tex., CA **$4,500,000.** 20 story OFFICE, 211 N. Erway St., DALLAS, TEX. Leo F. Corrigan & Assocs., c/o Mercantile Bank Bldg., Dallas, Tex. Hedrick, Stanley, & Morey, 904 Fort Worth Ave., Dallas, Tex., archts.-engrs. CD 4/16/53.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

June 27, July 3 California

STREETS AND ROADS

June 26, 27, July 3, 5 California

BUILDINGS—BA

▲† **Calif., Lompoc**—BLDG. REHABILTATION—BA 6/25—U. S. Eng., 751 S. Figueroa St., Los Angeles, 135 bldg. rehabilitation Camp Cooke, ENG-04-353-57-113. $4,500,000. CD 3/5.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento, Bids opened June 5,

Gordon H. Ball, Gordon H. Ball, Inc., Ball & Simpson and Lew Jones Constr. Co., 685 Delaware St., Berkely, Calif., (joint venture) LB **$5,419,268,** est. $5,949,900; (7 bidders) grading, paving 8.8 mi. 4 lane divided freeway on alignment between Rte. 42 and Los Gatos and Bascom Ave. in San Jose and between Tait Ave. and new Sign Rte. 17, constr. 15 br., Santa Clara Co., CD 5/2.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS

June 18 British Columbia June 20 Newfoundland

BUILDINGS—SLC

▲ **Ont., Sault Ste. Marie**—PLANT EXPANSION—Linde Air Products Co., 40 St. Clair Ave. E., Toronto, soon lets contract first phase of program, 1 story, 50x550 brick Plant, Total est. $3,000,000. Armstrong, Kingston, Hanson & Assocs., Ltd., 8 Six Point Plaze, Toronto, engrs. CD 1/30.

BUILDINGS—LB & CA

▲ **Montclair Constr. Co. Ltd.**, 5515 Western Ave., Montreal, Que. CA **$3,300,000.** 341 Class I row HOUSING UNITS, Camp Gagetown, FREDERICTON, N. B. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Wiggs, Lawton & Walker, 4350 Sherbrooke St. W., Montreal, Que., archts. Wiggs, Walford, Frost & Lindsay, 4350 Sherbrooke St., W., Montreal, Que., engrs. Awarded May 24.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **Argentina**—BA 10/18—Argentine Water & Power Bd. (ENDE) Buenos Aires, Rio Tercero No. 3 Hydro-Electric Power Plant, incl. gravity type dam, power plant with controls, workshop, return ditch, spillway with sluice gates, access road, diversion tunnel for Rio Tercero and permanent housing for personnel in province of Cordoba, 79,874,000 pesos ($4,437,000 at official 18 to 1 exchange rate). CD 1/28.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲ **M-K-O, Inc.**, 42 Broadway, New York 4, N. Y., U.S.A. CA Est. **$44,000,000.** Merabad Airfield and related installations, near Tehran, IRAN. Govt. of Iran, Tehran and U. S. Engrs., 176 Broadway, New York 7, N. Y., U.S.A. Ammann & Whitney, 111 8th Ave., New York 11, N. Y., U.S.A., archts.-engrs.

(Proposal Advertisement see pp. 180 to 182)

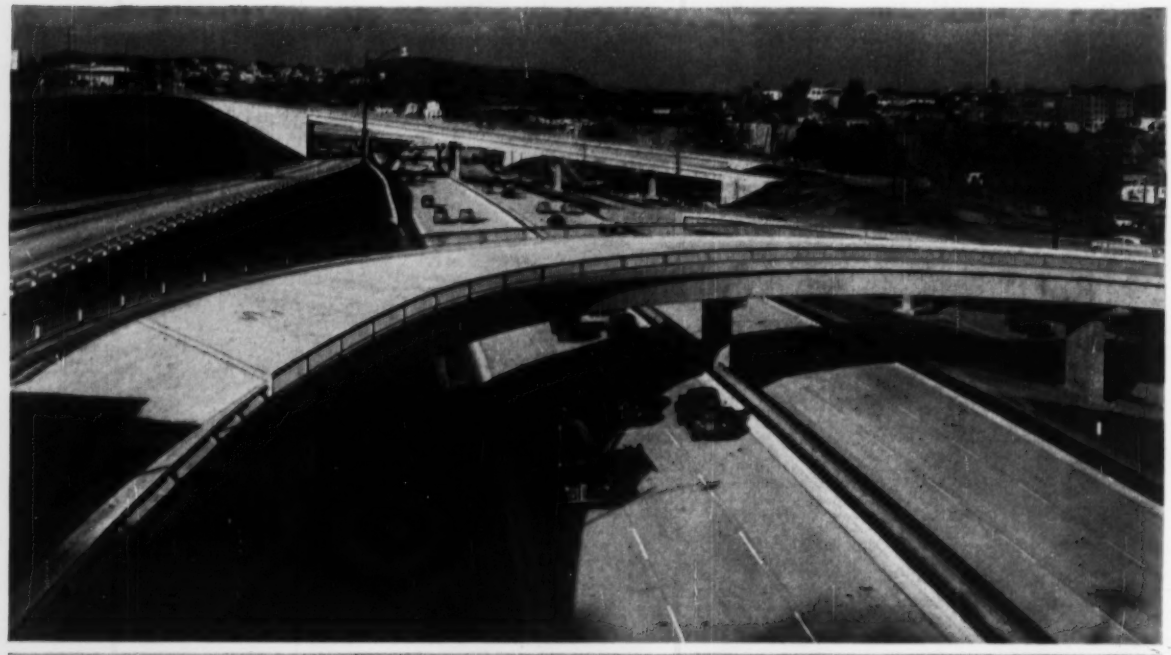
REINFORCED CONCRETE

high-speed expressways start quicker ... are completed sooner

From coast to coast, highway engineers are finding that reinforced concrete bridges start quicker because all necessary materials and labor are readily available from local sources. These faster starts, made possible with reinforced concrete, save months of delay.

Furthermore, reinforced concrete is a flexible medium that permits an infinite variety of imaginative and graceful designs. You can design multiple overpass bridges with bold, dramatic lines and soaring curves. Structures built with reinforced concrete are rugged . . . highly resistant to wind, shock, and quake. They are lower in first cost and require less maintenance.

On your next bridge or overpass, design for rugged beauty plus economy . . . design for REINFORCED CONCRETE.



Overcrossing located in downtown Los Angeles carrying local city traffic across the Harbor Freeway, U.S. Highway 6.

Designed by the California Division of Highways

Contractor: Winston Bros., Monrovia, California

CONCRETE REINFORCING STEEL INSTITUTE

38 South Dearborn Street, Chicago 3, Illinois

Construction Scoreboard

Activity this Week

AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 24 wks 1957	Chge '56-'57 %
	millions		
Federal	$35.1	$1,294.0	+56
State and Municipal	207.9	3,359.9	+14
Total Public	243.0	4,653.9	+23
Total Private	174.7	4,090.6	−39
U. S. Total	$417.7	$8,744.5	−17
By Type of Work			
Waterworks	$4.0	$186.0	+32
Sewerage	14.8	235.5	−19
Bridges	16.8	332.0	+13
Highways	101.4	1,408.0	+28
Earthwork, Waterways	10.4	566.3	+85
Buildings:			
Public, Excl. Housg.	50.7	1,021.5	+11
Public Housing	13.1	318.0	+84
Private Housing	77.6	1,453.4	−48
Commercial	31.3	796.2	−11
Industrial	61.0	1,610.3	−40
Unclassified	36.6	817.3	−10
U. S. Total	$417.7	$8,744.5	−17

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

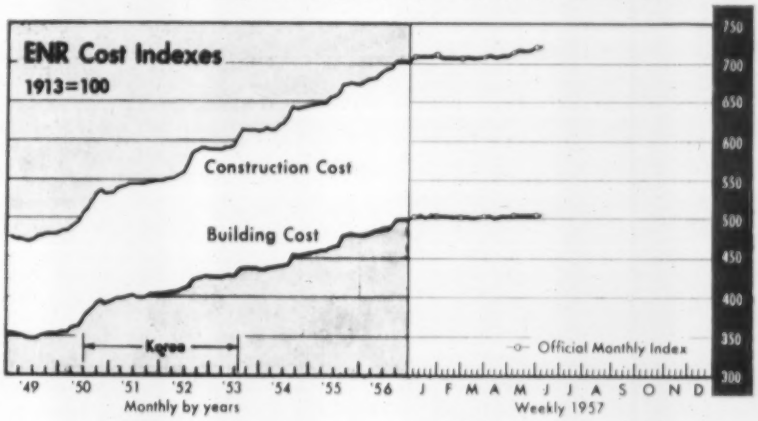
NEW CAPITAL FOR CONSTRUCTION

	Week of June 6	Cum. 23 wks 1957	Chge '56-'57 %
	millions		
Corporate Securities	$59.1	$2,697.6	+42
State and Municipal:			
All Except Housing	65.2	2,532.1	+23
Housing	...	41.5	+104
Federal Loans	4.9	105.3	+63
Federal Aid	...	250.0	...
Total Nonfederal	$129.2	$5,626.5	+39
Federal Appropriations:			
In U. S.	...	$0.9	−97
Outside U. S.	...	...	...
Total New Capital	$129.2	$5,627.4	+38

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of June 6 1957	% Change from May 9 1957	% Change from June 7 1956
Construction Cost	723.01	+0.6	+4.3
Building Cost	504.57	+0.3	+3.2

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518



CONTRACTS AWARDED

	May (millions)	1957 5-Mos. (millions)	% Change from 1956 April*	5-Mos.
Total U. S., ENR reported	$1,856.7	$7,884.2	+2	−19
Private	803.2	3,682.4	−12	−42
Public	1,053.5	4,201.8	+16	+22
State and Municipal	712.2	2,965.3	+5	+11
Federal	341.3	1,236.5	+48	+60
ENR Volume Index, 1913 = 100	553	544	−2	−25

NEW CONSTRUCTION CAPITAL

Total U. S.	$1,315.2	$5,498.2	−4	+37
State and Municipal Bond Sales	568.7	2,508.4	−9	+22
Corporate Security Sales	457.1	2,638.5	−35	+41
Federal Loans, Aid (nonfederal work)	288.5	350.4	+816	+453
Federal Appropriations (federal work)	0.9	0.9	...	−97

*Based on weekly average

MATERIALS SHIPMENTS

	Unit	1957 Feb. (F) Mar. (M) April (A)	Cum. (No. of Mos.)	Percent Change from year ago Mo.	Cum.
Portland Cement, Bur Mines	thous bbls	15,116(F)	26,921(2)	−5	−8
Concrete Paving Awards, PCA	thous sq yd	7,816(A)	31,790(4)	+3	+2
Fabricated Structural Steel	thous tons	314(A)	1,159(4)	+8	+2
Bookings, AISC	thous tons	360(A)	1,213(4)	−5	−18
Reinforcing Bars, Net, AISI	thous tons	240(M)	699(3)	+10	+22
Lumber, NLMA	mil fbm	2,758(M)	7,869(3)	−15	−14
Orders	mil fbm	2,847(M)	8,056(3)	−13	−14
Production	mil fbm	2,807(M)	8,139(3)	−9	−9
Douglas Fir Plywood, DFPA, 3/8" basis					
Production (aver per week)	mil sq ft	107.5(A)	99.8(4)	+1	−5
Orders (average per week)	mil sq ft	118.0(A)	101.4(4)	+34	+7
Clay Products, Bureau of Census					
Brick, Unglazed, Common, Face	mil bri	370.9(F)	685.0(2)	−19	−23
Vitrified Clay Sewer Pipe	thous tons	111.7(F)	219.6(2)	−28	−20
Structural Tile, Unglazed	thous tons	44.2(F)	90.6(2)	−14	−14
Asphalt Products, Bureau of Census					
Asphalt Roofing	thous sales sqs	3,342(M)	11,379(3)	−46	−19
Asphalt Siding	thous sales sqs	74(M)	268(3)	−38	−15
Aluminum, Wrought, Net, Bur Census					
Sheet and Plate (non-heat treatable)	mil lbs	76.4(M)	230.0(3)	−30	−23
Wire and Cable	mil lbs	23.5(M)	72.0(3)	−19	−7
Extruded Shapes (soft alloys)	mil lbs	51.0(M)	143.4(3)	−14	−13

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS	thous	2,929(A)	2,795(4)**	+3	+4
Contractor Failures, Dun & Bradstreet					
Number		172(A)	734(4)	+12	+29
Liabilities	thous	$9,090(A)	$38,626(4)	+30	+28

**Average per month

In actual road tests . . .

Dodge won top honors in test after test between comparable models of all three low-priced trucks. Special high-speed camera records actual finish of hill-climb test. From a standing start, test crews raced all three trucks up a 32% grade. Dodge was *first* by five lengths.

and on your job . . .

Dodge gives you more V-8 power, in every weight class, than either of the other two low-priced trucks. From 204-hp. pick-ups to 232-hp. tandems, the extra power you get in a Dodge means an on-the-job performance bonus for you. It means greater economy, too, because it cuts down engine strain, reduces wear and repairs.

Dodge *Power Giants* outpower, outperform the "other two" low-priced trucks by wide margin!

Want power? Dodge outpowers its low-priced competitors by as much as 27 percent.

Want economical performance? The advanced design of the Dodge short-stroke V-8 produces the most efficient fuel usage in the industry. You get more miles per gallon . . . full power on *regular gas*.

Want extra payload capacity and handling ease? Dodge has 'em beat on both counts.

How about it? Don't you think you should find out for yourself? Just give your Dodge dealer a ring. He'll bring a truck right to your door and he'll show you certified test results that demonstrate Dodge is a winner in actual tests and on your job.

DODGE

PowerGiants

MOST POWER OF THE LOW-PRICED 3

ROBERT B. ANDERSON . . .

Incoming Secretary of the Treasury, combines a knowledge of banking with broad business experience. As a former government official he knows his way around the Washington labyrinth. But, even with this headstart, he won't be in a position to alter the present money policy.

GEORGE M. HUMPHREY . . .

Outgoing secretary is a "sound money" man who supported tighter credit curbs in the early days of the Administration to halt runaway inflation, later feared the Federal Reserve was too restrictive, still later conceded the Fed's policy had been right.

New Treasury Chief: Same Money Policy

The Eisenhower Administration is getting a new Secretary of the Treasury—but is keeping its old policy toward money and credit.

The departure of George M. Humphrey, and his replacement by Robert B. Anderson, will not make the financing problems of the construction industry any lighter, money any easier to borrow, or interest rates any lower.

Mr. Anderson was picked for the top Treasury job because he is devoted to President Eisenhower personally, and a warm supporter of his policies. This means Mr. Anderson will back tight money as a protection against inflation in times such as the present, when economic activity is at a high level and prices are rising.

Mr. Anderson had held two high posts in the Defense Department under President Eisenhower before leaving to become president of Ventures, Ltd., a Canadian mine holding company; so he is familiar with the Administration's broad goals. In addition, as a businessman in Texas, he served as vice chairman of the Dallas District Federal Reserve Bank, and thus knows something about credit policy from the viewpoint of the agency that really determines it—the Federal Reserve Board of Governors in Washington.

In the public mind, Mr. Humphrey's name has been associated with tight money policy as its strongest defender in the Administration. But it is not the Secretary of the Treasury who decides whether credit should be easy or tight—it is the Board of Governors.

A year ago Mr. Humphrey even opposed the Federal Reserve—arguing that the time had come at least not to make credit any tighter. The board refused to take his advice, allowing interest rates to move up. A few months later Mr. Humphrey agreed the board had read economic conditions correctly and once more placed himself among the board's supporters.

In theory—and to a considerable degree in practice—the Federal Reserve is independent even of the White House. President Eisenhower has gone to great pains to stress his belief that the Fed should remain independent, calling its own shots according to its own reading of the economic situation.

Now that business has shaken off the first-of-the-year jitters, and economic forecasters are practically unanimous in predicting a rise in activity between now and the end of the year, money is likely to get scarcer—not easier—and interest rates are likely to go up—not down.

In a situation of this kind, the real hope of contractors is not for a general easing of credit, but for special help from the Administration. Very little is forthcoming.

Segments of the industry have drawn up an impressive list of particulars to show they are hit harder by tight money than buisness in general. The answer of the Federal Reserve and the Administration to such complaints is standard; construction as a whole continues to boom along with the economy, and as long as it does, there is no justification in coming to the rescue of any specific type of construction because it is having troubles competing for a short supply of money.

Construction expenditures as reported in the official economic indicators—prepared for the President's Council of Economic Advisors and circulated among all key policy makers—show over-all activity is higher now than a year ago. This is used as the stopper rebuffing appeals for special aid.

Housing, of course, is number one on all the lists of hard-hit activities, with starts down to around the 900,000 per year level, compared to 1.1 million in 1956, 1.3 million in 1955, and 1.2 million in 1954.

Officials believe tight money is the biggest single reason for this decline, but there is growing attention to some other theories. Two of these were outlined to Congress recently by Robinson Newcomb, economic consultant to the National Savings & Loan League. Mr. Newcomb, a veteran of the Washington housing scene, testified before the subcommittee on fiscal policy of the joint economic committee.

One of Mr. Newcomb's points is that homebuilders often don't know their own market. He pointed out that salesmen for new housing compete with salesmen for home modernization, automobiles, expensive travel and the like. "When the price of these competitive items is better than the price tag on a new house, some families who otherwise could be improving their housing standards may shift their ex-

penditures elsewhere," Mr. Newcomb said.

He cited the case of a homebuilder who had been complaining of weakening demand for his houses; a market survey disclosed he had been trying to sell them to the wrong kind of customers. He'd been trying to sell to people who already owned houses, where his best customers actually were renters. Mr. Newcomb argued that "better matching of the supply of new houses to the demand is required if the industry is to approach its potential, which he puts at 1.2 million starts this year.

Another explanation for housing's decline cited by Mr. Newcomb is the shrinkage of savings going to institutions which emphasize mortgage investments on 1 to 4 family properties, such as savings banks and savings and loan associations. He believes the flow of funds to such lenders will decline 14% this year, in contrast to a 14% rise in funds flowing to life insurance companies, pension funds, time deposits in commercial banks, and other institutions not emphasizing home mortgages.

The total amount of savings available for loans this year will be greater than in 1956, Mr. Newcomb estimates, but adds that "money is not flowing as freely as formerly into mortgage markets."

This analysis shifts some of the blame for housing's troubles from the general tight money policy of the Federal Reserve, and places it on the government policy of maintaining mortgage interest rates at a low level. Raise mortgage rates, the argument goes, and more savings will flow into mortgages even in today's relatively tight money market. Present mortgage rates, Mr. Newcomb argues, simply mean that consumers are being denied a chance to buy houses which they want to buy, while credit continues to flow readily for the purchase of autos, appliances and other consumer goods.

The tight money policy remains the most frequently heard explanation of housing's decline, however. Officials point out that during such periods, residential construction always is hit hard, and that no exception should be made for housing as long as the Administration retains its faith in over-all credit control as a means of stabilizing the economy.

Congress, of course, is ordering some liberalization of home financing burdens, but most of these don't strike at the heart of the problem—scarcity of funds for mortgage lending. Congress is lowering downpayment requirements on properties purchased with FHA-insured mortgages. It is also getting ready to approve more mortgage buying authority for FHA, and more money for urban renewal, college housing and the like.

In effect, the "no special treatment as long as construction in general booms," is given to other specific complaints.

Some cities and states are having trouble selling their tax exempt bonds for construction of schools, roads, sewerage and water facilities, and the like. Some projects are being postponed because of high interest rates.

But this is precisely what the credit authorities are hoping for—and the Administration has nothing in mind to lighten the interest burden on public construction projects. It does favor legislation to encourage the formation of investment trusts devoted to tax exempt bonds. The theory is that this will create a broader and more stable market for the securities of small cities, school districts, and other public bodies. But in the meantime, public construction remains well above a year ago, so it is holding its own in the scramble for scarce money.

The Administration also gets complaints that contractors are pinched for working capital, and for money to finance the purchase of needed new equipment. The theory is advanced that this might actually slow down such government projects as the big highway modernization program. But officials are satisfied with highway progress thus far. In response to a recent press conference question, President Eisenhower said some $700 million of contracts have been let. He takes this as a sign that the program is moving along at a reasonable pace.

All this means that the construction industry is about where it has been for the past year, so far as financing goes. Money is going to stay scarce—and expensive—as long as the general business boom continues at a high level.

States Push Road, Water Plans

Texas lawmakers approve $200 million bond vote for water conservation; Michigan votes more roads

Highways, water conservation and other public works programs took the spotlight as two state legislatures adjourned, while a third recessed with most of its work accomplished.

The Texas legislature voted to spend more money than any other in state history. Among its major achievements were: Initiation of a $200 million long-range water conservation program, broadening of the highway program to include state aid for right-of-way purchase, modernization of the workmen's compensation act and increasing of benefits and enactment of an urban renewal law aimed at clearing city blight.

Michigan's legislative body approved $27 million in construction projects and also established a formula for distribution of $205 million in gasoline tax revenue for highway construction and maintenance. Of the $27 million in construction money, only $8 million will be used for new work. The remainder will be used to complete work under way at various state institutions.

The Ohio legislature recessed until June 18, at which time it will consider three major bills. Most of its work has been done, however.

Still to be acted upon in Ohio are appropriations of $137 million for capital improvements and $414 million for state subsidies, including $365 million in school aid.

Before recessing, the Ohio lawmakers authorized:

- Expenditure of $785 million during the next two years as the state's share of the federal aid highway program.
- A referendum on a proposed constitutional amendment to permit metropolitan federations of local governmental units.

The Ohio legislature provided for a fifth highway deputy director to administer right-of-way acquisition, abolished the Highway Construction Council, and created atomic energy, water pollution and air pollution agencies within the Division of Health.

In the labor field, the legislature rejected moves to:

- Increase workmens' unemployment benefits.
- Authorize supplemental jobless benefits.
- Enact a fair employment practices act.

But the mushrooming suburbs were aided by legislation permitting municipalities to sell more than 50% of their excess water and sewer services outside city limits.

- **Money for water**—The $200 million

Engineers:
Hixson, Tarter & Associates, Cincinnati
Gen. Contractor: The Baldwin Company, Little Rock

MEN AT WORK...
beating construction time, cutting days off production schedules

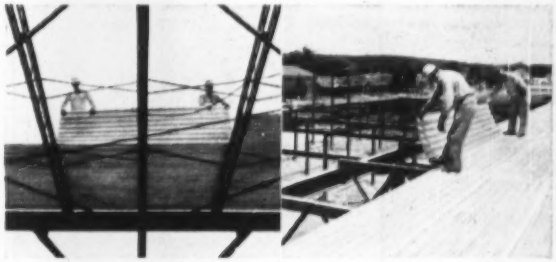
Thanks TO THESE 7 PLUS BENEFITS Kroger again "goes for" ZONOLITE®

CONCRETE *Poured-in-Place* OVER CORRUGATED METAL

—*the low cost...firesafe...lightweight* INSULATING ROOF DECK SYSTEM

Now in Little Rock, as in other locations, The Kroger Co. employed Zonolite vermiculite concrete for its mammoth new Distribution Center.

Poured over corrugated metal, this system went on faster, is firesafe and delivers high insulating value... yet is low in cost. Engineers credit Zonolite concrete-corrugated metal with savings of $5,000 on this job alone, compared to the alternate specified!



View shows type of joist used in Kroger's Little Rock Distribution Center. Corrugated metal being placed over steel frame.

Welding metal deck in place. Placing Zonolite vermiculite concrete.

Here are some of the benefits you can expect to derive from this

NEW-TYPE ECONOMICAL, BETTER PERFORMING ROOF SYSTEM

1. SPEEDY ERECTION—Skilled applicators apply Zonolite faster, cutting days off production schedule.

2. FIRESAFETY—Zonolite systems fire-tested by leading laboratories earn consistently high ratings.

3. LIGHTWEIGHT—Approximately 7½ lbs. per sq. ft.—eliminating many tons of dead-weight.

4. FLEXIBILITY—Zonolite is adaptable to any roof design—over corrugated steel, formboards, metal lath, paper-backed wire lath, metal deck.

5. MONOLITHIC—Poured monolithically, Zonolite leaves no voids, cracks, apertures; protects against "tardrip" should fire originate in under-areas.

6. INSULATING—Zonolite concrete provides astonishing insulation value, so important in present-day roof construction.

7. COST-SAVING—Zonolite concrete application saves time, labor, money!

MAIL COUPON FOR COMPLETE FILE DATA AND INFORMATION—*No Obligation*

FREE BOOK

Mail Coupon Today!

Here is a book you'll want to have for quick reference ...gives details of many roof deck systems...including design data, section drawings, ratings, etc.

ZONOLITE COMPANY
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ZONOLITE COMPANY, Dept. ENR-67
135 S. LaSalle Street, Chicago 3, Ill.

Please send me your new booklet, G-101, "Systems of Lightweight Construction"

Name.....

Firm Name.....

Address.....

City.....*Zone*.....*State*.....

☐ ARCHITECT ☐ BUILDER OTHER.....

bond issue approved by the Texas legislature will provide loans to cities, towns and water districts planning water conservation facilities. The overall program still must be approved by referendum in November. If the voters approve, the state will be authorized to loan up to one-third of the cost of a project or $5 million, whichever is less, to a political subdivision. Financial problems will be handled by a newly-created six member Water Development Board.

Although the Texas legislature took a long step in its water conservation program, the lawmakers did kill a proposed amendment to the constitution that would have allowed the state to issue $100 million in bonds to buy water storage space in future reservoirs.

Other water legislation approved permits the Board of Water Engineers to cancel unused certified filings and unused portions of water permits.

In addition, the legislation allows surface waters to be used to recharge underground reservoirs in certain areas, makes illegal the diversion of stored water released for downstream permit holders, and limits contracts negotiated by water districts.

More than $740 million was earmarked for highway improvement. Most of this is federal aid. The lawmakers also boosted motor vehicle license fees by 10% which will provide $8 million annually as the state's share of an expanded right-of-way program.

Also enacted was a bill empowering the Highway Commission to condemn land for right-of-way and pay for one-half the cost on state routes, that are part of the interstate system.

The legislature voted an additional $16.5 million for state hospitals and special schools and allocated $12 million for buildings other than hospitals and colleges.

• **Two new projects**—In Michigan, the lawmakers authorized an $8 million, 14 story state office building at Lansing. Another $1.2 million was authorized for a new state home and training school. These were the only new construction projects approved by the legislature.

The Michigan legislature also approved a formula for distribution of the $205 million highway fund. Under the plan, 47% will go to the state, 35% to the counties and 18% to the cities.

Approved also was an amendment to the highway bill allowing transfer of up to $3 million annually to partially guarantee amortization of bonds for a proposed Detroit to Flint turnpike.

This money can be taken from the highway fund only after the turnpike is constructed.

Failures Hit Four Month High

There were 734 construction contractor failures during the first four months of this year, the highest number for this period since such figures first were compiled by Dun & Bradstreet, the national credit reporting firm, in 1934.

The number of failures in the January through April period was up 29% over the same months in 1956. The dollar total of liabilities for the failing firms was up 28% on the same basis, reaching $30.1 million in the first four months of this year.

Building subcontractors led in the number of failures—394, up 23% over the first four months of 1956. General contractors accounted for 290 failures, up 36% over the same period last year.

Subcontractors doing heating, plumbing and air conditioning work represent the largest single group of failures —109. During the first four months of this year, they accounted for more than one out of every four subcontractor failures and for 15% of all contractor failures.

Why is the failure rate going up so fast? Dun & Bradstreet isn't sure because it normally makes an analysis of the reasons for failure only on the yearly figures. But some other observers feel that both for the general and subcontractor groups, three factors are combining to cause trouble: an increase in competition, a squeeze on profit margins and entrance of new (and inexperienced) firms into the field.

In the case of the plumbing, heating and air conditioning subcontractors, some believe that the bulk of the failures are occurring among inexperienced firms. Another factor is that this group operates extensively in the homebuilding field and the decline in residential construction might be taking a heavy toll of this one group in particular.

One point in the latest Dun & Bradstreet failure report that is causing some furrowed brows is the rise in liabilities of the failing firms. General feeling: The increase in liabilities indicates that some of the larger firms now are going to the wall.

The other possibility is that increased liabilities reflect failures of smaller contractors taking on bigger contracts. But industry sources discount this idea.

Contractor Failures by Type of Work

As Reported by Dun & Bradstreet

	First Four Months			
	Number		Liabilities	
Type of Work	1957	Change '56–'57 %	1957 (Thous.)	Change '56–'57 %
General Building Contractors	$290	+ 36	$22,321	+ 47
Building Sub-Contractors	394	+ 23	12,398	– 4
Heating, Plumbing, Air Conditioning	109	+ 16	3,769	– 22
Painting and Papering	31	– 3	534	– 27
Electrical	40	+ 14	1,335	– 16
Masonry and Stone Work	28	+ 87	687	+231
Plastering and Lathing	11	– 31	194	– 82
Terrazzo, Tile, etc	9	+125	185	+263
Carpentering	21	+ 50	307	+ 7
Flooring	16	+100	575	+ 71
Roofing and Sheet Metal	45	– 2	1,031	– 19
Concreting	22	+ 57	480	– 33
General Building Maintenance	2	•	33	•
Structural Metal Erection	8	•	209	•
Ornamental Iron and Steel Work	7	+ 40	376	+187
Glass and Glazing	26	+ 24	2,021	+115
Excavation and Foundation	1	– 75	67	– 71
Wrecking and Moving	2	– 50	35	– 90
Installing of Machinery and Equipment	16	+ 78	569	+185
Miscellaneous Trade Contractors	50	+ 43	3,907	+ 97
Other Contractors	18	+ 20	1,321	+ 74
Highway and Street	13	+160	1,013	+ 88
Heavy Construction—Sewers, Water Mains, Dams, etc	1	– 50	1,000	+ 11
Marine Construction	4	+ 33	198	+ 89
Water Wells	14	+ 40	375	– 23
Miscellaneous	734	+ 29	38,626	+ 28
Total Contractor Failures				

• None in 1956 period

NEW SAUERMAN SLACKLINE CABLEWAY INCREASES PRODUCTION OVER 25%

Bucket breaks water with heaping load from a 100 ft. depth...

Wherever deep digging is required and operating spans are long, the new Sauerman Slackline is adding to its margin of superiority over other types of excavators. Production increases of over 25% and in some unusual cases as high as 80% are reported.

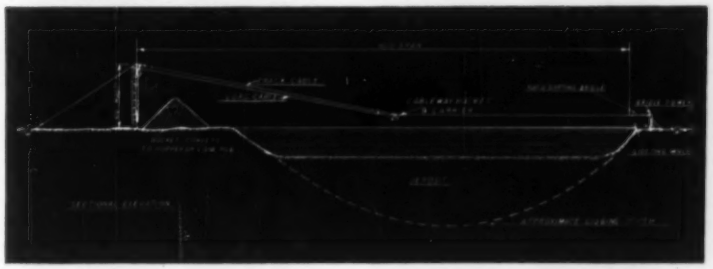
Not only is production increased but operating costs are lowered as cable and hoist wear is reduced and the machine runs with fewer peak loads and shocks—all possible from a cushioned drive using a torque convertor and other refinements.

These benefits are also available to present owners of slackline cableways. Guaranteed Gravel & Sand Co., a Sauerman Slackline user for over 35 years, has increased hoist speeds from 230 to 350 fpm. on the digging cycle and conveying speed to 800 fpm.—a gain of 25%. Guaranteed's 2-cu. yd. bucket is digging 450 ft. away from the surge pile and delivers 150 cu. yds. per hr.

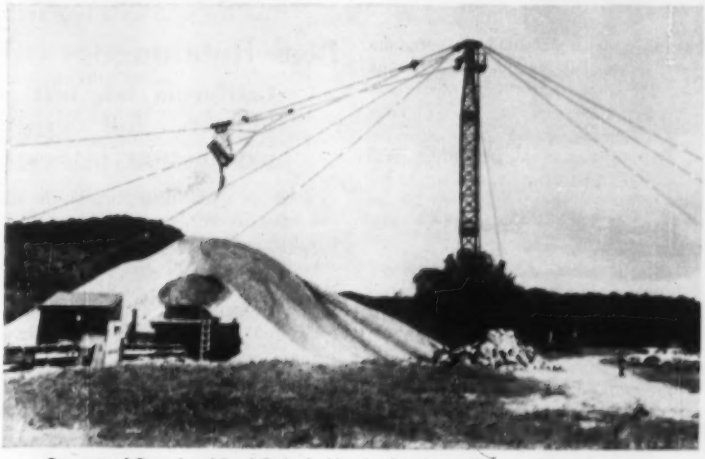
The Sauerman Method lets you work distant material—up to 1,000 ft. away and dig 100 ft. or more below water. Now more than ever the greater tonnage available through fluid drive operation makes a Sauerman Slackline Cableway the low cost way for deep digging.

Get the best machine for your job. Write to Sauerman for expert advice on any materials handling project. For additional information on slackline cableways, ask for Catalog C.

is conveyed and dumped automatically at surge pile.



Above drawing was prepared for a specific slackline installation and does not represent maximum spans. Rapid shifting bridle is not needed for many deposits.



Guaranteed Gravel and Sand Co.'s slackline bucket dumps 150 cu. yds. per hr. on surge pile from digging point 450 ft. away.

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Maine Breaks New Ground

Three precedents are set in construction financing; industrial development, sewage treatment get aid

The Maine legislature, which adjourned Memorial Day after the longest session in its history, set three state precedents that will aid construction.

The lawmakers approved and sent to the voters a proposed constitutional amendment that would permit pledging of the state's credit, through a $20 million bond issue, for a program to insure mortgages on new industrial plants built by local development corporations.

If the voters approve in September, a special session of the legislature will be called to set up a Maine Industrial Building Authority to administer the insurance program.

• **Anti-pollution grant**—In still another major step, the Maine legislature provided $418,000 for each of the next two years for grants that will help municipalities finance new sewers and sewage treatment plants. Together with $627,000 a year available in federal funds, the grants will meet 50% of the cost of a project, up to a maximum of $416,000 per project.

These grants are expected to give added impetus to the state's pollution control program, in which about 90% of Maine waters have been classified. Of 30,000 miles of streams, about 3,000 miles (mostly the large rivers) have not been classified yet.

• **Capital budget doubled**—Lawmakers also set aside $2 million in current revenue for each of the next two years for a construction reserve fund to augment appropriations of $9.7 million from surplus for new buildings and other capital improvements. The $13.7 million total will be twice the size of any previous capital budget for the state.

The Maine legislature also approved a referendum for a $24 million bond issue for highway construction. This bond issue would enable the state to match all federal funds for the next four years. This clears the way for a total highway construction program of $70 million in the next biennium and $164 million over the four year period.

On the touchy matter of reimbursing utilities for relocation of facilities because of the interstate highway program, Maine overwhelmingly agreed that the state would foot the bill (but 90% of the cost will be reimbursed by the federal government).

Because of a ruling by the State Supreme Court that such an expenditure would be an unconstitutional diversion of highway fund revenue, the state's share of utility relocation costs will be paid from the general fund.

• **School grants**—As an incentive to creation of larger school districts, the legislature provided $250,000 in grants for consolidated school construction. The $250,000 will be for the next two years.

The legislature also voted increases totaling about $5 million for education and somewhat smaller increases for institutions and health and welfare programs. These increases will be financed by an increase in the state sales tax, from 2% to 3%.

A survey of Maine groundwaters also was authorized by the legislature and an appropriation of $6,000 was voted for the survey which will be conducted in cooperation with the U. S. Geological Survey.

General fund appropriations voted by the legislature total $103 million for the next biennium. Highway fund allocations total more than $59 million with another $8 million to be borrowed.

The capital budget includes construction projects totaling $3.6 million at teacher colleges; $4.9 million for mental and correctional institutions; and $2.6 million at the University of Maine.

Less Retainage

California law will give builders full progress pay midway in contract

The law governing progress payments on work done by contractors for the California Department of Public Works was modified last week to allow full payment of money earned after a job is 50% completed.

Signed last week by Gov. Goodwin J. Knight, and effective Sept. 11, the new law permits the Public Works Department to withhold 10% of progress payments only on the first half of the job. Present law required the State Public Works Department to withhold 10% of the amount due until the contract is fulfilled.

Supporters of the law change argued that holding back 10% of a contractor's payment until contract completion was unnecessary because department jobs are bonded. They said the withholding feature of the old law therefore constituted an undue penalty for the contractor.

• **"Small" jobs get bigger**—Another law, increasing the size of public works jobs that can be done without calling for bids from $2,000 to $5,000 also was signed by the governor last week.

Public works officials said the measure would help cut costs.

Department spokesmen explained that contractors incur substantial over head expenses in preparing detailed plans, specifications and cost estimates on any bid. These costs assume too great a proportion of the total cost of smaller jobs. This law also becomes effective Sept. 11.

• **Separate bond series**—Counties also were given a helping hand by the legislature. A new law authorizes counties to sell their bond issues in separate series as funds are needed.

The law will help these governmental units prepare long-range plans for jails and other detention facilities, hospitals, sewerage projects and other public works. As an "urgency" measure, the bill took effect when signed by the governor.

The law's urgency clause asserts that "inflexible provisions of the existing law relating to the issuance and sale of county bonds make it extremely difficult to coordinate present financing requirements with the financing requirements of the future."

State Sales Tax Proposed On Federal Construction

Legislation to be introduced in Congress will require contractors to pay state sales taxes on materials used in federal government facilities. Rep. Jere Cooper of Tennessee, Chairman of the House Ways and Means Committee, will sponsor the bill.

Rep. Cooper was told by Herbert Bingham, executive director of the Tennessee Municipal League, that the state is losing approximately $2 million yearly because of sales tax exemptions granted contractors for the Atomic Energy Commission and the Arnold Engineering Development Center.

Mr. Bingham, describing the AEC as the "biggest tax dodger of all federal agencies," said the commission is "depriving our schools of needed tax dollars."

Sen. Strom Thurmond of South Carolina introduced a similar bill but has agreed to substitute the one proposed by Rep. Cooper.

(*B&F continued on page 173*)

HUGE 7,000 CAR, 40-ACRE PARKING LOT BUILT OF *Soil-Cement*

This 40-acre soil-cement parking lot serves the Southdale Shopping Center near Minneapolis. The lot is one of the largest in America, offers off-the-street parking for 5,000 cars and serves 70 stores.

Even in severe climates like Minnesota's, soil-cement has a record of performance unequaled in the low-cost paving field.

Here is a dramatic example of the growing use of soil-cement for paving parking areas. For this purpose the soil-cement is usually built 5 or 6 inches thick and covered with a thin bituminous surface. Soil-cement provides a low-cost parking lot that's quick and easy to build and needs little maintenance. Further evidence of the trend to soil-cement is found in the fact that in the last two years soil-cement paving has been placed in parking and storage areas in 19 states.

Write for free literature on soil-cement paving for parking areas. Distributed only in the United States and in Canada.

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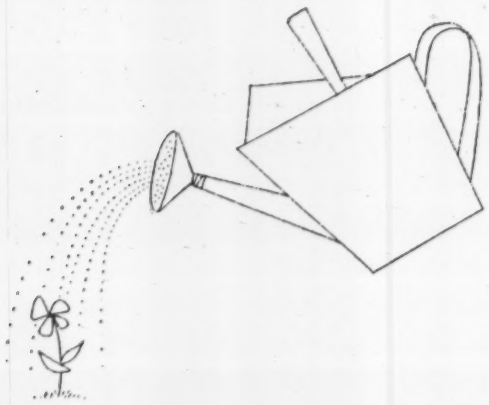

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Construction Markets

Detroit: An On-The-Spot Report

Public works activity is taking up some of the slack caused by the housing downturn in Detroit, Mich., and its suburbs. But any real surge in private work must wait for easier credit. That's the short-term outlook for this key construction market.

As in many other cities, the predictions vary depending on the group doing the crystal gazing. At least two distinct views are prevalent in the Detroit construction market.

Some Detroit builders and financiers say that construction for the entire year definitely will surpass 1956. To these people, the next four months also look good.

The more optimistic Detroit builders and financial men look for a general loosening of credit to start a new flow of money into the residential market. Housing built under government insured mortgages has suffered in the Detroit area but higher income housing, generally financed by conventional mortgages, is moving ahead.

Industrial building also is due for an upturn, many of the optimists feel.

However, other contractors, suppliers and money men are frankly pessimistic about the outlook, particularly for the next three or four months. They point out that: "A great deal of the actual welfare of the building industry is dependent on the residential field."

In Detroit, there is a sharp line of demarcation between "high dollar housing" and "low dollar housing." Generally, $15,000 is considered the demarcation line. Houses priced below $15,000 are considered "low dollar houses." This segment of the Detroit housing market has shown a continuing lag, blamed mostly on credit restrictions.

The market remains active, however, for housing selling for more than $15,000, principally because buyers in this category have been able to make substantial down payments and thus have been affected relatively little by tighter credit requirements.

Builders say that mortgage money is available and that the pool of mortgage money that could go for homebuilding has been augmented by funds that were going into commercial building until recent downturns in that field. The problem, these homebuilders claim, is that too many of their potential buyers cannot qualify at the bank.

CONVENTION HALL for the Civic Center will be a major project this year.

Presumably they either lack the larger down payments now required, their salary scales are not high enough to carry the size mortgage for which they are trying, or they are over-burdened with consumer debt.

The Detroit pessimists in the construction industry say also that the high overall level of activity in dollar terms is deceptive because public works have been a significant factor. For the first four months of this year, the state itself awarded more than $100 million in construction contracts. Without this, pessimists say the Detroit construction picture would not look nearly as bright.

In the public works field, school construction continues to move ahead at a rapid pace despite critical financing problems at the state level.

The area has its share of major projects coming along this year—an estimated $107 million worth. Biggest of these will be the $47 million convention hall for the Civic Center, a new $20 million post office, a $4.5 million apartment and commercial project and a $3 million addition to the Henry Ford Hospital.

But, after considering all of these factors, observers of the Detroit construction scene come back to one activity as the key to 1957—homebuilding.

One of the big reasons for the continuing slump in homebuilding in the Detroit metropolitan area, in addition to tight credit, is that the number of desirable building lots in Detroit for one and two family houses decreases steadily every year. There are few good lots available now in the city itself.

The decline has been sharp, too, because large projects in the housing field have fallen by the wayside. There are fewer mass housing projects, fewer apartment projects.

Adding to the woes in the homebuilding field, and causing some second thoughts in the commercial field, are the substantial wage increases being negotiated by building trades.

With land getting scarcer and more expensive and with labor costs rising so that homes—and other types of construction—carry higher price tags, Detroit seems to be counting heavily—perhaps too much so—on a change in federal fiscal policy, an easing of credit that will enable potential buyers of construction to pay more, painlessly. But unless that happens, some segments of the Detroit construction market may go through a painful period of their own.

(B&F continued on page 174)

Phoenix Bond Issue

Public works planned without tax increase

Phoenix, Ariz., has approved bond issues totaling $70 million to finance an expanded public works program with no increase in taxes.

Of the total, $46 million represents revenue bonds. The remaining $24 million in bonds will be amortized out of present tax revenues.

The Phoenix City Council has promised a 464 man group of volunteer citizens who prepared the program that no project will be authorized unless it can be completed without a tax increase.

Included in the program is construction of facilities to provide water and sewerage services to some of the communities surrounding Phoenix, on a fee basis.

"This is the Phoenix approach to the problem of providing services to a rapidly increasing metropolitan area population without resort to 'supergovernments' such as water and sanitary districts that cut across city boundary lines," Phoenix City Manager Ray W. Wilson explained. He added that the city wants "to avoid overlapping taxing units."

The contract service plan, Mr. Wilson said, will provide the communities with water and sewerage services at less cost than if they built their own water and waste disposal systems. The city eventually expects to provide service to an area of about 150 sq mi.

As part of the $70 million public works program, the city itself will get drainage and sanitary sewer improvements worth $9 million, airport improvements worth $5 million, and $6 million in street improvements. Parks and public buildings will receive $4.8 million each.

The program is expected to cover a five year period.

$54 Million Hydro Project Planned in North Carolina

Duke Power Co. is planning construction of a $54 million dam and hydroelectric project in North Carolina on the Catawba River, near Cowan's Ford, about 16 miles northwest of Charlotte.

The proposed dam would extend 5,870 ft across the river from Mecklenburg County to Lincoln County and would create a reservoir of more than 29,000 acres, extending into Catawba and Irdell Counties.

Plans for the project were disclosed in an application filed with the Federal Power Commission for a single 50 year license on the proposed dam and 10 existing dams in the company's Catawba-Wateree hydroelectric project, extending from Bridgewater, near Marion, N. C., to Wateree, near Camden, S. C.

The Cowan's Ford project would take three years to build. It would have three generators with an initial installed capacity of 262,500 kw, according to W. S. Robinson, chairman of the board. A fourth unit would be added by 1968 to bring the capacity to 350,000 kw.

Arizona Court Frees State Of Road-Closing Damages

Arizona's Supreme Court has ruled that the state may build a highway inaccessible to adjoining property without being required to compensate the property owners for loss of access.

Three claims had been brought against Arizona and, as a result, Attorney General Robert Morrison asked for the court's opinion.

It was ruled that while cities are required to compensate abutting property owners for damages done to the property by changes in street or sidewalk grade, there is no such requirement imposed upon the state or counties.

New Construction Market—Parking Space for Boats

While most cities are wrestling with the problem of where to park the cars, Milwaukee County, Wis., has a problem of its own—where to park the boats. The answer could result in some $11 million worth of construction.

Ralph H. Burcke, Inc., a Chicago architect-engineer firm retained by the Milwaukee County Park Commission, recommends the $11 million construction program to start immediately to provide boating facilities.

The Burke study shows that present mooring and launching facilities in the county are able to handle less than 7% of the boats now owned by county residents.

First Quarter Cement Output Lowest Since '54

Portland cement production during the first quarter skidded to the lowest mark for this period since 1954.

Mills produced a total of 59.8 million barrels during the January-March period, 7% less than a year ago and also lower than the first quarter output for 1955.

Subcontractor Sues

Seeks $219,711 compensation on stalled job

A subcontractor has filed suit in Federal Court at Tacoma, Wash., against the general contractor on the Mayfield hydroelectric dam for Tacoma City Light.

J. G. Shotwell, of Mercer Island, asks $219,711 compensation plus $14,968 a month since last April 1 from Arundel Corp. and L. E. Dixon Co.

• **Job delayed**—Work on the project has been hampered since Arundel-Dixon was awarded a $10.8 million contract June 23, 1955. Early this year, it was completely shut down after a court decision went against City Light. Tacoma has not terminated the contract but is paying standby time to the general contractor anticipating the project may still go ahead.

• **Subcontractor charges**—Mr. Shotwell says the general contractor has been receiving standby pay from City Light but has passed none of it along. Mr. Shotwell did receive $30,000 for setting up his concrete production plant at the site.

The subcontractor also claims he tried to get a contract release from Arundel-Dixon so he could put his idle men and equipment to work on other jobs. The prime contractor allegedly refused to release the sub from his contract.

First Barkley Dam Contract Awarded, Had 10 Bidders

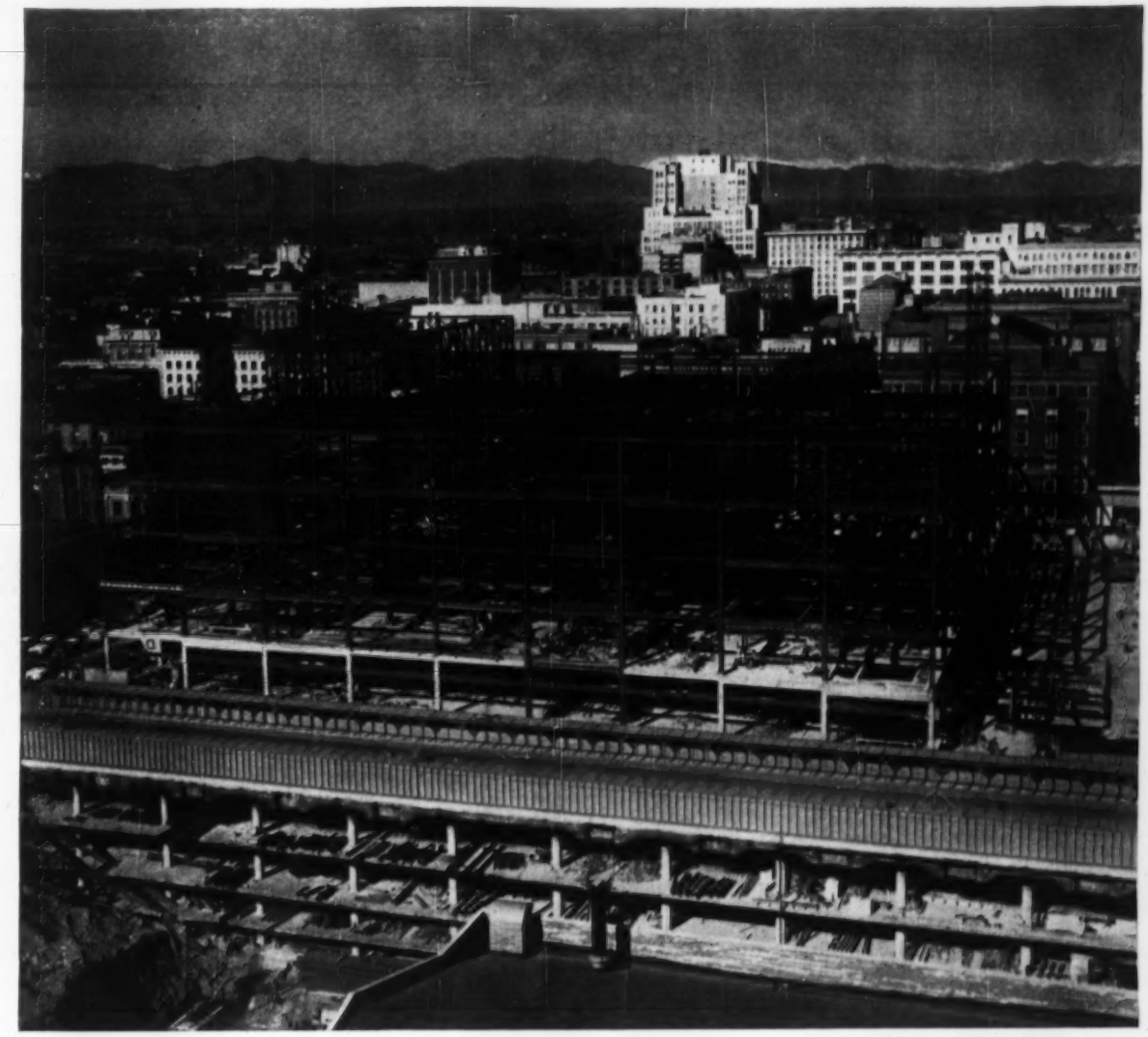
First construction on $167 million Barkley Dam—with its lock and powerhouse on the lower Cumberland River in Kentucky—was awarded last week with signing of a cofferdam and lock excavation contract at $3.5 million.

L. G. Wasson Coal Mining Corp. of Booneville, Ind., was the successful bidder—lowest of 10 who competed.

Col. Eugene J. Stann, Nashville District Engineer, announced that construction would begin within 30 days and must be completed in 450 days.

Barkley Dam, named for late Vice President Alben W. Barkley, is near Eddyville, Ky., will include a 100 x 800 ft lock to provide for 9 ft navigation. The dam itself will be 8,000 ft long, of combined concrete section and earth embankments. It will back up a lake 118 miles to the Cheatham Lock and Dam near Ashland City, Tenn.

Some $1.5 million already has been appropriated for the project.



Steelwork Marks Denver Boom

Things are humming in Denver these days. Focal point of the activity is Webb & Knapp's $35 million Courthouse Square development, where Bethlehem ironworkers were winding up a big job when the above photograph was taken.

The over-all project, 4½ acres in area, is to include a huge department store, a 20-story hotel, underground parking for about 2000 cars and a spacious plaza. The steelwork shown here is for the 5-story-plus-basement department store building, to be the new home of Daniels & Fisher, a prominent local concern.

The building, about 400,000 sq ft in area, is the largest department store built west of Chicago in several decades. Its construction represents a bold reversal of the trend toward suburban shopping centers, as the Courthouse Square development is in the heart of Denver's business district.

Like the nearby Mile High Center office building, also fabricated and erected by Bethlehem, the store building's steel frame was erected with high-strength structural bolts. This technique has become widely favored in recent years.

The Courthouse Square development is a project of Webb & Knapp, Inc., and Webb & Knapp Construction Corporation. *Architect:* I. M. Pei & Associates; *associated architects:* Ketchum, Gina & Sharp; *structural engineers:* Weiskopf & Pickworth.

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Apprenticeship: Critical Challenge

Eastern Seaboard Apprenticeship Conference puts emphasis on cooperation, education and promotion

Out of the Thirteenth Annual Eastern Seaboard Apprenticeship Conference came a clear indication last week that the construction industry has generally adopted a serious and sober approach to the training of its future craftsmen.

The conference, which is the oldest of all the multi-state meetings on apprenticeship, was held at the Marshall House in York Harbor, Me. Arranged by the Maine State Apprenticeship Council and Regions I and II of the Federal Bureau of Apprenticeship and Training, it brought together representatives of management, labor and government from Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York and New Jersey. Its purpose was to explore on all levels the success and failure of present apprenticeship efforts in all industries and to seek new ways to improve and expand the apprenticeship movement.

What did the conference prove with respect to the construction industry? Most significant, perhaps, was this: The industry appears to have accepted the fact that apprenticeship must be tackled as a critical business problem vital to the welfare of all—a problem in which the interest of the industry as a whole is greater than the individual interests of any of its parts. Absent were the management-labor bickering and buck-passing, and the wariness and distrust so common in the past. In their place was strong evidence of a new determination to utilize, build upon and improve the present system of apprenticeship, which is based on voluntary but joint participation of labor and management. The emphasis throughout the conference was placed on planning, cooperation, coordination, education and promotion.

• **No magic wand**—At the outset of the conference, William F. Patterson, former Director of Apprenticeship and now special assistant to the Secretary of Labor, told the conference that there is "no magic formula for reaching a solution" to the problem of increasing the number and quality of skilled craftsmen. "Long-range and expanding needs," he said, "cannot be met by 'crash-type' programs or spectacular approaches."

In a relative sense, the progress of the past has been good—the construction industry has led the rest of the nation's industries in the production of journeymen through programs conducted in cooperation with federal and state apprenticeship and vocational agencies.

Here's a glance at what the industry has done, as reported by William C. Chrisensen Director of the Bureau of Apprenticeship and Training: Since January 1955, the number of registered apprentices has increased from 158,000 to 188,000. The number of Joint Apprenticeship Committees with established training budgets has jumped from 222 to 1,148; the number with full-time coordinators has risen from 24 to 94. And at the present time the number of full-time training directors employed by labor unions and trade associations (soon to include the Associated General Contractors) now stands at 23.

But in many of the building trades—including carpentry, trowel and ironworking — apprenticeship completions have failed to keep pace with normal journeymen losses, and indications are that at the present rate some of the trades, together with their contractors, are drifting down the road to self-destruction.

The conference discussion left little room to doubt that this natural interest in self-preservation, made increasingly critical by the availability of substitute materials and by the elasticity of union jurisdictional boundaries, is now one of apprenticeship's biggest boons. Said Paul Harvey, president of the Associated General Contractors of New Hampshire-Vermont: "We can't do business from an empty wagon."

And aside from this phase of the economic problem came another word of warning to the unions from the electrical workers' International Secretary, Joseph D. Keenan, in his keynote address: "In return for their high rate of pay, building craftsmen must be able to deliver performance."

• **Problems**—What are some of the problems the conference considered? Nearly as numerous as the industry is diverse, most of those discussed by construction representatives were either ideological, economic or mechanical. They embraced such roadblocks as contractor aversion to red-tape and outside interference, union reluctance to relinquish control, journeymen resistance based on the fear of loss of employment, the economic aspects of apprentice productivity, the problem of steady employment for apprentices, loss of the training investment caused by job-hopping, drop-outs and promotions to supervisory work, apprentice pay, prevailing wage requirements, apprentice probation and union dues, screening, pre-job training, program financing, public relations, record-keeping, on-the-job supervision, use of the union business agent as an agent of the JAC and content and quantity of related instruction.

Except for a conference resolution urging inclusion of safety as a training subject, suggested solutions to individual and group problems came by way of exchanges of ideas, information and experience.

Bulk of the suggestions appeared to point in a single direction: The best results are obtained through close adherence to the national apprenticeship program which most of the trades have developed. On the local level, this implies an active, competently staffed, adequately financed and well-publicized Local Joint Apprenticeship Committee, which is guided by formal standards and by-laws and in which is centered full responsibility for the selection, direction, control and training of apprentices for that particular trade.

Typical, however, of some of the broader problems were three suggestions from Col. Welton A. Snow, manager of the Building Division of the national AGC: re-examination of apprenticeship standards with a view to deleting training requirements that go beyond those necessary to produce a skilled craftsman, leaving for separate programs efforts to train men to be foremen or superintendents; possible elimination from national standards of the 144 hour related instruction requirement, delegating to local JACs the right to determine, within the limits of state law, the length of the related training period; and further exploration of the possibility of introducing pre-job training (which precedes the formal apprenticeship program) into all the crafts.

• **Proof of the pudding**—Mr. Patterson, at the opening session of the conference, called the present system a "stable foundation" on which to build, and the carpenters' First Vice President John Stevenson said, "It affords a splen-

(Continued on page 179)

NEW "POWER-ANGLING" DOZER

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- Saves work!
- Doubles output!

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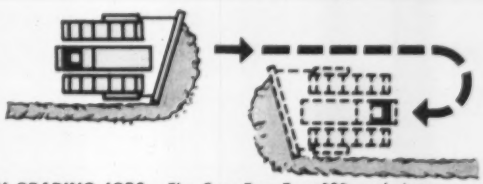

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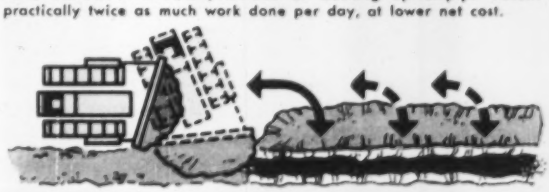

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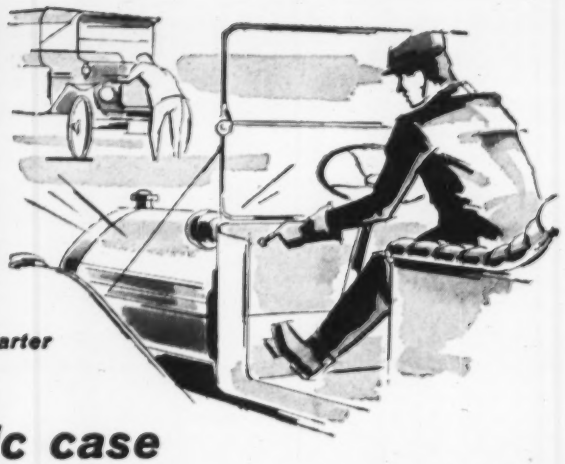
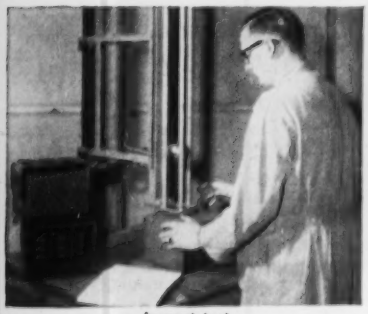


1912 — First electric starter

1952 — First thin-wall plastic case was introduced by GLOBE

The first electric starter made good batteries absolutely essential to trouble-free motoring. And Globe-Union — already pioneering in the field — has kept right on working through the years to make those good batteries even better. A typical Globe improvement "first" is the thin-wall plastic battery case—perfected in 1952 after 10 years of research to provide—

- *21% more acid capacity*
- *96% increase in resistance to impact*
- *40% greater resistance to acid penetration*



Impact test

Bulge test

The battery that's built to take brute punishment and *give* peak performance for tens of thousands of hard-driving miles. Proof of strength is thin-wall container's score on the "Impact test and Bulge test" as illustrated above. Proof of container's extra acid capacity is shown in side-by-side comparison of thin-wall plastic design with composition material design . . . use of new plastics also means less acid absorption without contamination of acid.

Another milestone in power — another first for Globe!

FASTER, LOW-COST DELIVERY!

Globe's sixteen plants are strategically located for fastest, lowest-cost shipments to all markets; fourteen (*) are producing creatively packaged dry-charged batteries.

*ATLANTA, GA., *DALLAS, TEXAS, *EMPORIA, KANSAS, *HOUSTON, TEXAS, *LOUISVILLE, KY., *MEDFORD, MASS., *MEMPHIS, TENN., *MILWAUKEE, WIS., *MINERAL RIDGE, OHIO, *PHILADELPHIA, PA., *REIDSVILLE, NO. CAROLINA, *SAN JOSE, CALIF., *HASTINGS-ON-HUDSON, N. Y., *LOS ANGELES, CALIF., OREGON CITY, ORE., AJAX (ONTARIO) CANADA

SPINNING POWER
GLOBE-UNION
SPLIT-SECOND STARTING

GLOBE-UNION INC.

MILWAUKEE 1, WISCONSIN

If it's Petroleum-powered there's a GLOBE-BUILT BATTERY right from the start!

did opportunity to teach the trades." Were they right?

An indication of the answer came from Mr. Christensen. Referring to a Bureau of Apprenticeship study soon to be published, he said that 3,300 apprentices who completed their training in 1950 have been surveyed recently. Of these, he disclosed, 93% are still in the same trade or in a closely related one; 68% are still journeymen, 18% are now foremen and 5% have moved into the ranks of contractors or business owners. Although 53% thought their on-the-job training could have been better and 54% saw room for improvement in their related training, they overwhelmingly agreed that the national apprenticeship program is the best way to learn a trade.

RICHARD J. MITCHELL (third from left) is congratulated by leaders of the construction industry following his appointment as Chairman of the National Joint Board.

Building Contractor to Head Joint Board

Richard J. Mitchell, Pittsburgh contractor, moves in this week as peacemaker for the construction industry's jurisdictional disputes. His appointment, effective June 15, comes at a time when the system faces its biggest trial. The National Joint Board for the Settlement of Jurisdictional Disputes, which Mr. Mitchell will direct as chairman is currently facing troubles with the Taft-Hartley Act and is in the process of re-organizing its own operations.

Mr. Mitchell, who becomes board chairman on a three-day-a-week basis, succeeds Harvard Professor John T. Dunlop. Mr. Dunlop has headed the board since its beginning in 1948, technically on the basis of one day a week. Mr. Mitchell will receive substantially more than Mr. Dunlop, an estimated $20,000 annually or more.

Besides the increase in the director's working schedule, the National Joint Board is now tightening up some of its procedures to get quicker compliance with its jurisdictional rulings. These plans, however, are still in the discussion stage with an Aug. 1 deadline to put them into effect.

Mr. Mitchell, who has been an industry member of the Joint Board for the past six years, is taking over as its top man during one of the board's biggest challenges. In the past, the National Labor Relations Board has normally allowed the Joint Board to make conclusive jurisdictional settlements, only moving in to stop a jurisdictional strike with a court injunction. However, several court rulings have directed the board to make its own determinations in jurisdictional disputes, regardless of the Joint Board procedure.

Whether the Taft-Hartley Act requires the NLRB to make its own ruling is still an unsettled issue, and will probably linger in the courts for some time. The outcome will substantially affect the operations of the Joint Board which, to date, has been a significant factor in the labor-management peace program.

Mr. Mitchell, 57, is an executive vice president of the Trimble Co. of Pittsburgh. He was selected after Mr. Dunlop's original choice, Oscar Smith, of the Atomic Energy Commission, rejected a one-year contract.

ESA Adopts New Look

Engineers' union will be solely professional

The national convention of Engineers and Scientists of America, held last month in Los Angeles, placed a premium on professionalism.

Starting July 1, member groups admitted to ESA will consist only of professionals. Units of the union that now represent technicians will represent only professionals in the future.

ESA has estimated in the past that 85% of its members are graduate engineers. Total membership is approximately 40,000. Of this total, 2,500 to 3,000 are reported as civil engineers.

Although technicians now in ESA member units will be permitted to remain on the rolls, they will not pay dues nor will they have voting or other membership privileges.

Anticipating at least a temporary membership drop as a result of this move, the delegates voted to increase annual dues from $6 to $8.

• **Other changes**—The delegates also acted to stress ESA's professional appeal by increased attention to the technical aspects of engineering. Technical symposia will be initiated later. Meanwhile, the union's concern with the technical side of engineering will be pointed up quickly in the next issue of ESA's monthly magazine. The publication will contain technical articles and professional news in addition to reports on ESA activities.

Officers of the organization, when questioned by ENR, appeared unconcerned about competition from the AFL-CIO. They feel that the organizing of unaffiliated engineers will be a gradual process because the engineers will be unreceptive to a "fast sell" by the AFL-CIO.

Only a "completely professional" collective bargaining organization can attract engineers, ESA officials asserted.

The delegates also gave the ESA Executive Board authority to approve or disapprove strikes by member units.

If work stoppages are disapproved, the organization can withhold assistance to the unit or invoke penalties. The penalties, however, were not defined. They will be decided by the Executive Board on an individual basis.

• **Audits required**—The bylaws were amended to require annual audits of member unit books, records and funds, with the audit to be done by a certified public accountant.

Copies of the audits will be given

to each unit's membership and to the Executive Board of the ESA. If an audit is not submitted to the Executive Board by the member unit, the Executive Board can order an audit and charge its cost to the unit.

Joseph Amann and Albert A. Orth, Jr., were re-elected president and vice president, respectively. Others elected were, Dan H. Hendricks, Jr., secretary, and William Bencan, treasurer.

Labor Briefs . . .

• **Jobless insurance**—Maximum weekly unemployment benefits have been increased by legislative action from $33 to $40 in Connecticut, from $30 to $33 in Maine, from $26 to $30 in Florida, and from $25 to $40 in Oregon.

• **No strike pledge**—The Pittsburgh, Pa., Building and Construction Trades Council has agreed to refrain from jurisdictional strikes for a year in exchange for a contractor and subcontractor promise to abide by existing labor contracts. Next step may be a labor-management grievance committee to determine disputes.

• **Pre-job contracts**—The Senate Labor Committee of the California State Legislature has approved a bill that would outlaw pre-job contracts in the building trades and require representation elections before all contract renewals. It would completely destroy established union membership requirements, said the State AFL, and plunge labor relations into chaos.

• **Picket damages**—A Nebraska court has granted an Omaha contractor a $75,000 damage award—believed to be the largest in the history of the state court system—against a laborers local. The nonunion contractor claimed he was assaulted when his housing project was picketed by the union.

• **Can't be sued**—In a decision with far-reaching consequences, the Supreme Court of Canada has ruled a labor union can't be sued because it has "no contractual capacity." A teamster member had attempted to sue his union local for suspending him after he questioned the union's use of membership dues. Union officers and not the local, said the court, were the ones to sue.

• **Promotion**—Plumbers and steamfitters in Scranton, Pa., and the Lackawanna County Association of Plumbing and Heating Contractors have established an industry promotion fund in their new labor contract. Money will be used for public relations and for changes in plumbing and heating codes.

• **Merger**—Georgia AFL and CIO forces have merged into the Georgia State AFL-CIO. This is the result of nearly 15 months of effort.

OFFICIAL PROPOSALS

APPEAR HERE EACH THURSDAY. PROPOSAL ADVERTISEMENTS ACCEPTED UP TO 10:30 A.M. FRIDAY FOR THE ISSUE DATED THE FOLLOWING THURSDAY

Bids: July 9, 1957

Contract BP-150.010

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
BROOKLYN-PORT AUTHORITY PIERS
PIER 1
ERECTION OF STRUCTURAL STEEL

Sealed proposals for the erection of structural steel for the transit shed to be erected for future Pier 1 at the Brooklyn-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, July 9, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, June 13, 1957

Bids: June 25, 1957

Contract EXD-130.030

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUILDING
REHABILITATION OF SECTION ON NINTH FLOOR

Sealed proposals for performing alterations on the ninth floor of the Port Authority Building, 111 Eighth Avenue, New York 11, N. Y., will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, June 25, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, June 13, 1957

Bids: July 9, 1957

Contract BT-120.011

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
MODIFICATIONS TO AIR CONDITIONING SYSTEM

Sealed proposals for performing modifications to the air conditioning system at the Port Authority Bus Terminal, 625 Eighth Avenue, New York, N. Y., will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, July 9, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, June 13, 1957

Bids: July 9, 1957

Contract BP-150.006

ADVERTISEMENT
THE PORT OF NEW YORK AUTHORITY
BROOKLYN-PORT AUTHORITY PIERS
PIER 1
PURCHASE OF STRUCTURAL STEEL

Sealed proposals for the furnishing, fabrication, storage and delivery of structural steel for the transit shed to be erected for future Pier 1 at the Brooklyn-Port Authority Piers will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P. M. on Tuesday, July 9, 1957, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman
New York, June 13, 1957

OFFICIAL PROPOSALS

Bids: 6/27/57

Power Authority of the State of New York

BARNHART-PLATTSBURGH
TRANSMISSION PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF
13,800 VOLT STATIC CAPACITORS
SPECIFICATION NO. PA-6-32
CONTRACT NO. TP 10

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture and furnishing of four (4) 6000 KVAR 13,800 volt static capacitor banks and associated equipment and delivery thereof, f. o. b. cars at destination until 10:30 A. M. Eastern Daylight Saving Time on the 27th day of June, 1957, at the Authority's office 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be received for the capacitors and associated equipment and services in accordance with the bidding schedule. Installation of the capacitors and associated equipment will be done by Others, but services of erecting engineers shall be provided by the manufacturer when and if required. Delivery of the capacitors and associated equipment will be required May 1, 1958.

Plans, Specifications and Proposal Forms may be obtained only from the Power Authority of the State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) for initial set of Contract Documents and Five Dollars ($5.00) for each additional set, no part of which will be refunded. Two sets must be returned with each bid.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, for the inspection by prospective bidders.

Bids will not be restricted to American manufacturers.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than ten (10) percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-6-32

U. S. Government

Department of Commerce, Bureau of Public Roads, May 29, 1957. SEALED BIDS will be received at the office of the Regional Engineer, Bureau of Public Roads, 1440 Columbia Pike, Arlington, Virginia, until 11:00 a.m., D.S.T., JUNE 27, 1957, for Project 1N2, Blue Ridge Parkway, Roanoke and Franklin Counties, Virginia, 6.964 miles grading, draining, crushed gravel or crushed stone base course, a grade separation structure and other work from Secondary Route 690 in Roanoke County to Adney Gap. The approximate quantities of the more important items are: 913,040 cu. yd. Excavation, 42,000 tons Crushed Gravel or Crushed Stone, 1,100 cu. yd. Concrete, 1,955 cu. yd. Stone Masonry and 9,155 lin. ft. Concrete Culvert Pipe. Minimum wage rates have been fixed as required by law. Plans, specifications, and proposal forms are available upon request at the address given above or Bureau of Public Roads, 920 South Jefferson Street, Roanoke, Virginia. H. J. Spelman, Regional Engineer.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4922) will be received at Albuquerque, New Mexico, until July 9, 1957, for furnishing labor and materials for Earthwork, Clearing and Structures for Irrigation Rehabilitation, Belen Unit 3, Middle Rio Grande Project, New Mexico. Location in Valencia County, New Mexico. Principal items are clearing right-of-way and cleaning 9.6 miles of waterway; 2,500 cu. yds. excavation for structures; 240 cu. yds. concrete; furnishing and installing 85 slide gates; and other work. Completion time 225 days. For particulars, address Bureau of Reclamation, P. O. Box 252, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: July 2, 1957.

Contract 446 Unwatering and Cleaning the Rondout-West Branch Tunnel of the Delaware Aqueduct

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Daylight Saving Time (10:00 A.M. Eastern Standard Time), on Tuesday, July 2, 1957, for Contract 446, for unwatering and cleaning the Rondout-West Branch tunnel of the Delaware aqueduct and for performing the work incidental to these operations. The work of this contract includes unwatering the tunnel and maintaining it in an unwatered condition until it has been cleaned and a final inspection made; moving pumps and other unwatering equipment owned by the City of New York from places of present storage, installation and use of such equipment and its subsequent removal and return to storage; furnishing, installation, operation and subsequent removal of a head frame, hoist, hoist house and appurtenant equipment; and furnishing, installation, use and removal of plant and equipment required for the cleaning of the tunnel, all as set forth in the specifications.

Pamphlets of the contract containing information for bidders, forms of bid and contract, specifications, contract drawing, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312 at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: August 19, 1957

Government of Iraq Electrification of Basrah Power Project Contract No. (8)

CIRCULATING WATER PUMPS, BAND SCREENS, COARSE GRID SCREENS, WATER LEVEL FLOAT INDICATOR & CIRCULATING WATER PENSTOCKS

The Development Board and Ministry of Development of the Government of Iraq invite tenders from qualified firms for the supply and delivery, of Circulating Water Pumps, Band Screens, Coarse Grid Screens, Water Level Float Indicator and Circulating Water Penstocks for Basrah Power Station.

Full information regarding this tender can be obtained on and after June 17, 1957 from Iraq Embassy—Washington or Messrs. Ewbank and Partner, 10/11 Grosvenor Place, London S. W. 1, England.

All Tender Documents are to be submitted in English to the Ministry of Development, on or before 12 noon, local time on August 19, 1957.

Minister of Development.

Bid: August 15, 1957

Government of Iraq Electrification of Basrah Power Project Contract No. (5) Turbine House and Auxiliary Cranes

The Development Board and Ministry of Development of the Government of Iraq invite tenders from qualified firms for the supply and delivery, of turbine House and Auxiliary Cranes for Basrah Power Station.

Full information regarding this tender can be obtained on and after June 10, 1957 from Iraq Embassy—Washington, or Messrs. Ewbank and Partners, 10/11 Grosvenor place, London, S.W. 1., England.

All Tender Documents are to be submitted in English to the Ministry of Development, on or before 12 noon, local time, on August 15, 1957.

Minister of Development.

OFFICIAL PROPOSALS

Bids: July 2, 1957

Construction of Ohio River Interceptor

Sealed bids for Construction of Ohio River Interceptor, Section "D" in Louisville, Kentucky, will be received at the office of Metropolitan Sewer District, 412 W. Market Street, Louisville, Kentucky, until 12 o'clock noon Central Daylight Saving Time on Tuesday, July 2, 1957, at which time they will be publicly opened and read. Project includes construction of about 4,000 linear feet of 8 ft. sewer and appurtenant work including about 150 linear feet of tunneling. Alternate bids on monolithic concrete semi-elliptical sewer and precast concrete pipe circular sewer are permitted.

Plans, specifications and information for Bidders will be available Tuesday June 11, 1957, at the office of the District, or may be examined at the offices of Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., which will be furnished to prospective bidders upon the deposit of $50.00 for complete set of Plans and Specifications. Said deposit will be refunded upon return of the Plans and Specifications in good condition within 30 days of the date of opening of bids.

Bidder's proposal must be accompanied by a certified check in an amount of Fifty Thousand ($50,000) Dollars, on Louisville, Kentucky or New York City Banks, payable to the Metropolitan Sewer District.

The District reserves the right to reject any or all bids or waive any informality in any bid and to accept any proposal considered by the District to be on the whole, the best.

LOUISVILLE & JEFFERSON COUNTY
METROPOLITAN SEWER DISTRICT
Louis J. Herrmann, Sr.
Chairman

Bids: June 25, 1957.

Philadelphia, Penna. Procurement Department Water Department

Sealed proposals will be received in Room 313, City Hall Annex, until 2:30 P.M., Daylight Saving Time, on Tuesday, June 25, 1957, and opened at that time, for Bid No. 2832—Contract No. SD-217-8W.

Lower Schuylkill West Side Intercepting Sewer in City Property, West Interchange of Penrose Avenue Bridge, Private Property and Railroad Right-of-Way from a point 191 feet N.W. of center line of Southwest Sewage Pumping Station (Sta. 1+89.00), Northeastward to 67th Street (Sta. 85+06.-41).

PRINCIPAL ITEMS OF WORK

6122 feet of 5'-0" diameter concrete sewer in tunnel (sand and gravel)

2196 feet of 4'-6" diameter concrete sewer in tunnel (sand and gravel)

Proposal forms, questionnaires, and specifications may be obtained from the Water Department, in Room 1131 City Hall Annex, Juniper Street and Filbert Street, Philadelphia 7, Penna. Blueprints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Company, 1230 Arch Street, Philadelphia 3, Penna.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions fully answered must be filed with the Water Commissioner, 1106 City Hall Annex, at least one (1) week prior to the date of opening bids.

Each proposal must be accompanied by security in form and amount as set forth in the proposal form.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4927) will be received at Ogden, Utah, until July 10, 1957, for furnishing labor and materials for Earthwork, Pipe Lines, and Structures for Trunkline 10 and Trunkline 18.8, Davis Aqueduct, Weber Basin Project, Utah. Location near Ogden, Utah. Principal items are 57,300 cu. yds. excavation; 883 cu. yds. concrete lining for equalizing reservoir; 455 cu. yds. concrete in structures; 21,025 lin. ft. prestressed concrete pipe or 24-, 27-, and 30-inch plate-steel pipe mortar lined and coated; Steel piping, valves, meters, and miscellaneous metalwork; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, P. O. Box 387, Ogden, Utah; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: June 27, 1957.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 27th day of June 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Oneida	FA88 57-7	Champlin Road, Co. Rd. Project S-504 (1)	1.17	Asp. Conc., Ty. 1A = 1.16 Mi. Misc. Work = 0.01 Mi.	$29,000 Plans $10	$534,000
DISTRICT No. 3, Wm. Robinson, District Engineer, Weigh Lock Building, Syracuse, N. Y.						
Onondaga (Rte. 11)	FARC 57-91	Syracuse-Cicero, S.H. 5470 Project F-463(16)	1.06	Asphalt Concrete	$5,000 Plans $10	93,000
Oswego	FATC 57-5	City of Fulton: East-West Arterial Highway, FAC 56-7 Project U-624(4)	0.99	Traffic Signal System	$2,000 Plans $10	29,000
Tompkins (Rte. 13 & 34)	FARC 57-89	Ithaca-Newfield, S.H. 5214 Ithaca-West Danby, Pt. 1, S.H. 5379 and Ithaca, S.H. 454 Project F-506(7); F-560(4)	4.47	9" Cem. Conc. Pavt. 24'-40' Wide = 0.78 Mi. Asp. Conc = 3.61 Mi. Misc. Work = 0.08 Mi.	$27,000 Plans $15	486,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Genesee (Rte. 5)	FARC 57-79	Leroy-Caledonia, S.H. 5463 Project F-335(3)	0.12	Asp. Conc., Opt. = 0.08 Mi. Misc. Work = 0.04 Mi. R. C. Slab Br. 24'	$3,000 Plans $10	57,000
Livingston (Rte. 256)	FARC 57-98	Dansville-Conesus, Pts. 2 & 3, S.H. 1702 Project F-579(6)	6.74	Asphalt Concrete	$3,500 Plans $10	63,000
Livingston (Rte. 258)	FARC 57-78	Tuscarora-Groveland, Pt. 1, S.H. 1732 Project S-333(1)	0.15	Asp. Conc. = 0.13 Mi. Misc. Work = 0.02 Mi. Prestressed Conc. Unit Br. 94'	$11,000 Plans $10	200,000
Monroe	LOSP 57-1P	Lake Ontario State Parkway Sect. "D"	3.04 (1.16 Acc.)	Asphalt Concrete Hy. Sep. Rigid Frame 106.7'	$73,000 Plans $25	1,230,000
Monroe	FATC 57-4	City of Rochester: Inner Loop (South Ave. to George St.); FAC 56-3 Project U-231(10)	0.32	Traffic Signal System	$3,000 Plans $10	47,000
Monroe (Rte. 252)	FARC 57-87	Ballantyne Bridge-Pittsford, Pt. 1, S.H. 8443 Project F-600(6)	2.27	Asphalt Concrete	$11,000 Plans $10	202,000
Monroe (Rte. 47)	FARC 57-97 R.C. 57-99	Howard Road, S. H. 9350 Rapids-Rochester, S.H. 401 Project S-511(1)	2.82	Asph. Conc. = 2.75 Mi. Asph. Conc., Ty. 2B = 0.02 Mi. Misc Work = 0.05 Mi. Remove & Replace Wearing Course on Exist. Br.	$15,000 Plans $10	266,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court St., Buffalo, N. Y.						
Erie (Rte. 5)	T.C. 57-3	Main Street, S.H. 69	2.80	Traffic Signal System	$6,000 Plans $10	102,000
Erie & Niagara	T.C. 57-2	City of Tonawanda: Seymour St., FAC 56-2 City of Tonawanda: Seymour St.-Barge Canal, FAC 55-12 City of North Tonawanda: Barge Canal-River Road, FAC 55-13	0.99	Traffic Signal System	$4,000 Plans $10	70,000
Niagara (Rte. 18 & 62)	FARC 57-86 R.C. 57-90	Niagara Falls-Buffalo, Pt. 2, S.H. 5164 Niagara Falls-Buffalo, Pt. 3, S.H. 5220 Project F-500(7)	5.43 (0.12 Int.)	Asphalt Concrete	$30,000 Plans $10	585,000
Erie & Niagara (Rte. 18)	FARC 57-96	Niagara Falls-Buffalo, Pt. 4, S.H. 5172-5172A Niagara Falls-Buffalo, Pt. 3, S.H. 5220 Project F-500(8)	2.33	Asphalt Concrete	$15,000 Plans $10	265,000
DISTRICT No. 6, J. H. Thomas, District Engineer, 30 West Main St., Hornell, N. Y.						
Steuben (Rte. 36)	FARC 57-61	Hornell-Arkport, S.H. 5254 Project F-619(4)	2.71	Asphalt Concrete	$12,000 Plans $10	214,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
Clinton (Rte. 190)	FARC 57-88	The Forge-Ellenburg, Pt. 3, S.H. 8480 Project F-853(2)	3.33	Asphalt Concrete Alterations to Exist. 62' Plate Girder	$32,000 Plans $15	582,000
Franklin	FASH 57-13	Saranac Lake Village Project U-623(7)	1.04 (0.04 Int.)	Asphalt Concrete Pre-stress Conc. Beam Br. 186' Pre-stress Conc. Ped. Overpass 120'.	$45,000 Plans $25	830,000
Lewis (Rte. 12D & 26)	FARC 57-77	Oneida County Line-Turin, S.H. 5327 Constableville-Lyons Falls, Pt. 1, S.H. 1600 Project F-330(6), F-415(11)	0.70	Asp. Conc., Ty. 1A = 0.65 Mi. Misc. Work = 0.05 Mi. 2 R.C. Box Brs. 35.6' and 31.5'	$12,000 Plans $15	220,000
Jefferson (Rtes. 12 & 179)	FARC 57-94	Watertown-Cyrayton, Pt. 3, S.H. 5266 Project F-745(4)	2.35	Asphalt Concrete	$4,000 Plans $10	72,000
Jefferson (Rte. 3)	FARC 57-95	Oswego County Line-Aspinwall Corners, Pt. 1, S.H. 8418 Project F-539(9)	4.15	Asphalt Concrete, Ty. 1A	$7,000 Plans $10	127,000
St. Lawrence (Rte. 420)	FARC 57-92	Massena-Winthrop, Pt. 1, S.H. 5641 Project F-112(5)	0.71	Asphalt Concrete, Ty. 1A	$1,500 Plans $10	28,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Columbia (Rte. 66)	R.C. 57-84	Chatham-Chatham Center, Pts. 1 & 3, S.H. 1563 Chatham-Chatham Center, Pt. 2, S.H. 342 Chatham Center-Riders Mills, S.H. 827	3.88	Roadside Development	$250 Plans $10	4,000
Orange (Rte. 42)	R.C. 57-85	Port Jervis-Sullivan County Line, Pt. 1, S.H. 412	1.60	Roadside Development	$650 Plans $10	12,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick St., Binghamton, N. Y.						
Delaware (Rte. 28 & 30)	FARC 57-80 R.C. 57-81	Andes-Margaretville, S.H. 8017 Margaretville-Halcottsville, S.H. 5384 Project S-459(1)	0.48	9" Cem. Conc. Pavt. 22'-40' Wide = 0.36 Mi. Asp. Conc., Opt = 0.09 Mi. Misc. Work = 0.03 Mi.	$10,000 Plans $10	190,000
Schoharie (Rte. 20)	FARC 57-93	Sharon-Sloansville, S.H. 8081 (Westbound Lane) Project F-33(3)	7.34	Asphalt Concrete	$24,000 Plans $10	445,000
DISTRICT No. 10, M. E. Gould, District Engineer, Little East Neck Rd., Babylon, L. I., N. Y.						
Bronx	FIBE 57-2	Bruckner Expressway, Sect. I, Cont. 4C and 4D Project I-1086(5)	1.99	Demolition of Buildings	$14,000 Plans $10	252,000
Nassau (Rte. 106)	R.C. 57-83	Jericho-Oyster Bay, S.H. 9021	1.35	Asphalt Concrete	$4,000 Plans $10	72,000
Nassau (Rte. 107)	R.C. 57-82	Massapequa-Glen Cove, S.H. 9017	3.22	Asp. Conc. = 3.15 Mi. Misc. Work = 0.07 Mi.	$9,000 Plans $10	163,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds.

Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

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The advertising rate is $31.80 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

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P. O. Box 12, N. Y. 36. June 27th issue closes June 17th

REPLIES (Box No.): Address to office nearest you
c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Gunite Superintendent—Wanted immediately. Middle Atlantic States. State age, experience, availability, salary desired. P-4640, Engineering News-Record.

City Engineer: Registered professional engineer desired for City of approximately 18,000. Municipal experience desired, but not mandatory. Full details of education, experience and qualifications should be furnished. Contact Mayor, Fremont, Nebraska.

Engineers on water works, sewerage and sewage treatment projects. Experienced in design and plan preparation for sanitary projects or work of related type. Opportunity for permanent connection with Ohio consulting firm in long established practice. Please provide full details of experience, education, references and salary. P-5047, Engineering News-Record.

Engineering Graduates with experience in the testing and control of concrete, asphalt and soils for work abroad. Give full details of experience and education. Salary range $8000.00 to $10,000.00 per year. P-5104, Engineering News-Record.

Experienced Steel Detail Checker. Must have minimum of 3 years detailing experience. Assistant to Chief Engineer. Will supervise and check work of detailers, handle job correspondence and scheduling. Will be trained to do steel estimating. Good salary, usual vacation and benefits plus profit sharing plan. Send resume and references to—Michigan Fabricating and Welding, 1950 Wellworth St., Jackson, Michigan.

Electr. and Mech. Project Engrs., Design Ltg. Power & Comm. Systems; Design Heat-Vent-Air Cond., Com'l & Ind'l Bldg. Pers. Mgr. 321 S. Beaudry, Los Angeles 17, Calif.

Young engineer needed for field and office work with established sail foundation firm covering the Mid-Atlantic States. Work will be out of Washington, D. C. office. Write to Spencer, White, & Prentis, Inc., Rm 236, Tower Bldg., Washington, D. C. or call Harry Schnabel, St. 3-0580.

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Is it complete?
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Naturally, you are anxious to secure the most suitable man or men available. You want men with special training that will make them an asset to your organization. You can contact such men through an advertisement in the Employment Opportunities Section of ENGINEERING NEWS-RECORD.

Classified Advertising Division—
ENGINEERING NEWS-RECORD
P. O. Box 12 **New York 36, N. Y.**

BRIDGE & HIGHWAY ENGINEERS DRAFTSMEN

BROOKHART & TYO
Consulting Engineers
3501 N. Front St. Harrisburg, Pa.

POSITIONS VACANT

Project Engineer to Head Up Inspection & Testing Group (Soils, Concrete & Asphalt) on construction of Overseas Airbase. Temperate Climate. P-5208, Engineering News-Record.

Inspectors—Concrete, Soils & Asphalt, Lab & Field. For Overseas Airbase Construction. Temperate Climate. Please send detailed resume. P-5257, Engineering News-Record.

Superintendent, Excavation & Sewer. Must be fully qualified to handle industrial excavation and municipal sewer work. Cerco Construction Company, Inc., P.O. Box 41035, 3421 West Kelly St., Indianapolis 41, Ind.

Two Teachers, Mechanics, Applied Electricity, General Physics. One Head of Department, Ph.D. engineering preferred. B.S. or M.S. also considered. Salary and rank dependent on qualifications. Salary scale good. Room for advancement. Apply President, Montana School of Mines, Butte, Montana.

College Business Office—Assistant, preferably with engineering background, for administrative work assisting in general supervision of maintenance; plant operations, including dormitories, dining halls, and faculty housing; purchasing; new construction; and auxiliary activities. At large eastern college in attractive rural location. Previous institutional experience not required. Prefer man under 35. Write, giving age, experience, salary requirements, and enclose photograph. P-5246, Engineering News-Record.

Construction Superintendent Wanted by progressive well established southwestern general contractor. Prefer man under 35 capable of adapting to our organization and methods. Send recent photograph and resume of experience to Warner Construction Company, P.O. Box 769, San Angelo, Texas.

Construction Engineer Wanted. Prefer man with recent Civ. Eng. training, not over 25. Will train as estimator and field engineer. Send recent photograph and resume of experience and/or training to Warner Construction Company, P.O. Box 769, San Angelo, Texas.

Civil Engineer with at least two years college training not over 35. Must have military training completed and interested in the building construction business, starting in the field. We offer opportunity for rapid advancement to ambitious, hard-working young men willing to accept responsibility. Starting salary $110.00 per week if unexperienced, with higher wages for those with some experience. Send complete history data. Martin K. Eby Construction Co., Inc., 610 N. Main, P.O. Box 1679, Wichita 5, Kansas.

ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

POSITIONS VACANT

Wanted: Graduate M.E. to supervise contractors shop, mechanics, field operation of equipment, purchasing; young man, broad experience preferred. N.Y. State area. Resume and salary requirement to P-5322, Engineering News-Record.

Civil Engineer, Experienced in Sewage Collection and Treatment, preliminary planning for housing projects and/or Roads and Streets. Will consider business interest, profit sharing, or, state minimum salary. Write: C. C. Jobe and Associates, P.O. Box 544, Merritt Island, Florida.

Engineer, Ass't.—City of Zion, Illinois, experienced or training in surveying, road construction & maintenance and drafting desired; salary $4732—$5238; apply City Clerk-Manager, City Hall, Zion, Illinois.

Engineer-Gunite, wanted immediately, must know estimating, take complete charge of all gunite operations. Executive position ultimately available. P-5355, Engineering News-Record.

EMPLOYMENT SERVICE

Better Positions—$6,000 to $50,000. Want a substantial salary increase, more opportunity or different location? This national 47 year old service connects you with best openings. You pay us only nominal fee for negotiations: This we refund when employer pays placement fee. Present position protected. In complete confidence, write for particulars. R. W. Bixby, Inc., 559 Brisbane Bldg., Buffalo 3, N. Y.

POSITIONS WANTED

Construction or Project Manager, capable executive. 27 years experience from field superintendent to Foreign Resident Manager. All types multi-million dollar construction, foreign and domestic. Contract negotiations, estimating, purchasing, labor and public relations. Spanish, German, French Portuguese. Seeking a permanent assignment but would consider challenging term contract in Europe, Latin-America or USA. PW-5275, Engineering News-Record.

Civil Engineer—Good all-round man, broad experience. South or West. PW-5113, Engineering News-Record.

Project Manager—20 years experience, power plants and heavy industrial work both foreign and domestic. PW-5122, Engineering News-Record.

(Continued on page 186)

WOULD YOU LIKE TO COME TO MAINE TO WORK?

If you are an Engineering College Graduate,

we have an opportunity in which you may be interested. The Bangor and Aroostook Railroad Company has a position available in its Engineering Department with headquarters in Houlton. The right man will participate in design, planning and execution of varied and challenging engineering projects. Immediate employment.

Liberal pension plan, paid up life insurance, generous sick leave, salary approximately $6000 per year. *Wire, write or phone:*

BANGOR And AROOSTOOK RAILROAD

Engineering Department

Houlton, Maine **Telephone 2213**

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OVERSEAS OPENINGS FOR GRADUATE CIVIL ENGINEERS WITH SEVERAL YEARS HIGHWAY ENGINEERING EXPERIENCE.

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CALEX has openings for Jr. and Sr. Engineers to perform staff and service functions in the following fields:

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Candidates should meet the following requirements:

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Salary commensurate with background and experience. Liberal employee benefits.

Send detailed resume to:

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Highway & Bridge Engineers Designers & Draftsmen

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Excellent working conditions and employee benefits including liberal retirement program.
Openings in Pennsylvania, Maryland, Florida, West Virginia, Mississippi and overseas.

Air Mail Resume TO R. L. SHAW, *Personnel Director*

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BAKER BLDG. ***Consulting Engineers*** **ROCHESTER, PA.**

WANTED

ENGINEERING GEOLOGISTS, SOIL MECHANICS, CONCRETE AND ASPHALT ENGINEERS, INSPECTORS AND TECHNICIANS—

Recent graduates with soil mechanics and concrete laboratory training may apply. Openings in field and laboratory for construction contracts of highways and large engineering projects in the middlewest. Send resume to:

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Experienced personnel for permanent positions with long-established sanitary engineering consulting firm. Life insurance and other benefits. Salaries Open.

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P-5328, Engineering News-Record, Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

OFFICE ENGINEER

With some experience in heavy construction for ESTIMATING DEPARTMENT

BOOTH & FLINN COMPANY

1942 Forbes St. **Pittsburgh**

GENERAL MANAGER

Prestressed Concrete Products Plant Located in Texas

Opportunity for experienced man in precast concrete management. Prestressing experience not essential. Executive qualifications necessary with special emphasis on organizational and Sales Engineering ability. Must be an Engineer with some structural concrete design experience. State full experience, salary expected, etc. with reply. Must be under 45 years.

This company has been in operation for some years and is presently expanding rapidly. Affiliated companies operating in all phases of prestressed concrete.

The right man can't miss!

P-5276, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Ill.

CITY ENGINEERING DEPARTMENT. Progressive city of 30,000. City Manager Government. Apply, giving references, experience etc. to

P-5278, Engineering News-Record, 520 N. Michigan Ave., Chicago 11, Ill.

CIVIL ENGINEER: Salary $4800 to $7200 depending on education and experience. Prefer municipal or highway experience, either design or field.

SURVEYOR: Salary $4200 to $6600 depending on education and experience. Prefer experienced layout man for streets and utilities. Drafting essential.

STRUCTURAL ENGINEER

Graduation from a college or university of recognized standing with a degree in engineering, specializing in structural engineering, and 3 years experience in a responsible capacity involving design of all sizes and classes of buildings and structures or an equivalent combination of experience and training. Salary $6136-$7436 per annum. Complete details by writing to

DIRECTOR OF PERSONNEL

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STRUCTURAL STEEL DETAILERS CHECKERS - SQUAD LEADERS

Experienced in Power Houses, Mill, & Tier Bldgs. Permanent positions open in our DETROIT AND MIAMI, FLA. OFFICES. Top rates and many Co. benefits.

We share moving expenses

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150 S.E. 2nd St., Miami 32, Fla.

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STRUCTURAL ENGINEERS DESIGNERS DRAFTSMEN

Prefer several years or more experience in any of these fields:

BRIDGES

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TEST FACILITIES*

Will consider lesser experience with good educational background, including several recent graduates to round out a planned expansion program. Occasional openings for combination field men. These are permanent additions to our regular staffs.

We are professional engineers engaged primarily in design which covers a wide scope of practice. The variety and unusual character for example, the proposed world's largest bridge project—offer excellent opportunity for professional development and advancement.

Immediate openings in our St. Louis general offices and occasionally in our San Francisco branch office. Confidential interviews can also be obtained at Washington, D.C., and Portland, Oregon.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross. Moving allowance.

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*We are designers of the technical facilities for the Arnold Engineering Development Center, operated by our subsidiary, ARO, Inc.

GENERAL MANAGER

for a
WEST COAST CONSTRUCTION COMPANY
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Unusual opportunity for experienced engineer capable of project sales, estimating, planning, and coordinating work, to assume full responsibility for the general management of a young, well-financed company which is engaged in heavy construction of industrial plants and installations and whose projects now exceed $2,000,000 annually. Attractive base salary and liberal share of profits.

Reply by letter in confidence, giving full particulars of personal history, education, and experience, to:

STEVENSON & KELLOGG, LTD.
Consulting Management Engineering
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ASSISTANT TRAFFIC ENGINEER

For Traffic Engineering Department recently established. Salary range $622 to $691 a month with maximum salary obtainable through annual and longevity increases. Registration as a professional engineer required. No residence restrictions for U. S. citizens to begin work. Wisconsin Retirement Fund and Social Security Benefits.

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Require at least 15 years experience in heavy construction including earth, rock and concrete. Will consider person now in position of lesser responsibility. Send qualifications to:

P-5338, Engineering News-Record, Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

SENIOR ENGINEER
Highway Maintenance Foreign Employment

Civil Engineer with extensive experience in roadway maintenance operations (including program administration) required to supervise country wide maintenance program of project in Near East. Liberal salary, transportation for family plus other attractive allowances and benefits. Send detailed personal history and experience record.

P-5339, Engineering News-Record, Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CHIEF STRUCTURAL ENGINEER

Top opportunity with outstanding Los Angeles Architect-Engineering firm for registered Professional Engineer with a degree. Should be at least 45 years of age. Must have design experience on tall commercial buildings and have held supervisory position in the past. Excellent working conditions, top fringe benefits, profit sharing. Please reply, giving complete details of academic and work history and salary requirements to:

P-5289, Engineering News-Record, 68 Post St., San Francisco 4, Calif.

SENIOR BRIDGE DESIGN ENGINEER
FOREIGN EMPLOYMENT

Engineer well versed in design (10—15 years experience) and construction of highway bridges needed to supervise structural program of highway mission in Near East. Country wide operation. Liberal salary, transportation for family plus other attractive allowances and benefits. Send complete resume including list of references.

P-4928, Engineering News-Record, Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

POSITIONS WANTED

(Continued from page 183)

Architectural Engineer, graduate, 10 years exp. in various construction capacities, presently heading own Contracting firm. Background Greek education desires position (Eng. Administrative or sales) in Greece only. PW-5225, Engineering News-Record.

Construction Superintendent or Project Manager thoroughly experienced on all types of projects. Will go anywhere, foreign or domestic. Available immediately. Best of references. PW-5180, Engineering News-Record.

Resident Engineer with 25 years experience on Power Plants, Bridges, Sewage and Water Treatment Plants, Industrial, Commercial and Monumental Buildings. Available immediately. PW-5181, Engineering News-Record.

Looking for supervisor job, any distance. I have 35 years experience in blasting in tunnels, sewers, roads, etc. I'm ready to work in July, I'm willing to work two ways: salary or by the ability to the progress; not last 6 months or more agreement. Write: A. B. Izzo, 827 Morris Park Ave., Bronx, or tel. T.T.A. 2-7000.

Registered Professional Engineer Executive. Extensive experience Construction, Maintenance, Design Management over $350,000. Industrial, Public Works, Structures, Utilities. Excellent references. PW-5265, Engineering News-Record.

C.E. Age 54. 32 yrs. exper. Reg. P.E. Desire work in small New England city. PW-5256, Engineering News-Record.

Bldg. Const. Engr, B.S. Rensselaer Poly. Inst. 1953. Available approx 16 Sept 1957. Four years Military Construction experience. PW-5252, Engineering News-Record.

Superintendent, Bldg. Const. 25 years experience field supervision. Industrial, commercial, institutional, churches, etc. Similar field position desired. Can travel. PW-5332, Engineering News-Record.

Construction Estimator available. Experienced in bidding work of every class and size. Excellent opportunity for a large company which needs a man of outstanding ability. New York or N. Eng. PW-5336, Engineering News-Record.

General Supt., Project Manager, Architect, Engineer, Supt. Air Base Commercial Industrial & Plant Construction, Highways & Sewers. Available immediately, Domestic or Over-Seas. PW-5334, Engineering News-Record.

Structural Steel—17 years experience in Erection, Estimating, Chief Draftsman, Sales, Asst. Mgr. Current salary $13,000. Licensed Civil. Prefer West or Southwest. PW-5073, Engineering News-Record.

Soils Engineer, Reg. P.E. 34; BSCE, MS soils, single. Experience in structural and foundation design. Laboratory testing. Engaged on airfields, dams, buildings & variety substructural work. PW-5331, Engineering News-Record.

Architect's supervisor on construction, wide experience. Can locate anywhere. PW-5301, Engineering News-Record.

Available Now. Seek position with progressive company. 20 years experience U.S. and overseas in heavy equipment as company representative and dealer executive. 44 years. Will relocate. PW-5304, Engineering News-Record.

Wanted job as Supt. or Project Manager. Have 25 years experience in heavy Const. Heavy Grading and General Const. am available in the near future. Please state your desires and expectation in your reply. PW-5307, Engineering News-Record.

General Manager, Chief Estimator, Project Manager, Industrial, Commercial & heavy Construction from bid to completion. Estimating, Bidding and supervision. Graduate Engineer and licensed. 25 years background. Desire change. PW-5354, Engineering News-Record.

PART-TIME WORK WANTED

A group of professors would like to get some extra work, preferably highway bridges, highways, reinforced concrete structures, mill buildings towers, etc. Reasonable rates. "Preliminary drawings in 48 hours", is our motto. PTWW-5250, Engineering News-Record.

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The advertising rate is $23.60 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

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2—GRADERS
8—HEAVY TRACTORS & DOZERS
2—820 LORAIN 2½ YD. DRAGLINES
1—80 LORAIN 1½ YD. DRAGLINE
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(Continued from page 189)

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IGY: An Unprecedented Quest

ONE OF THE MOST AMBITIOUS international joint efforts ever undertaken in peacetime—the International Geophysical Year—will officially get under way the first of next month. Scientists of 57 nations will launch an intensive cooperative probe of earth, sea, atmosphere and outer space.

The program is actually 18 months long. It runs from July 1, 1957, through 1958. And in truth, it is much longer if preparation is counted. For the IGY follows years of ground-work, including projects of such magnitude as the much-publicized expeditions of several nations to Antarctica to establish posts, and precedes years of appraisal during which the data collected will be analyzed and interpreted. Most spectacular feature of the program will be the rocket-launched satellite, which will send back to Earth information on outer space.

The knowledge gained in this unprecedented international quest will have a far-reaching effect.

St. Lawrence Blues

THE ST. LAWRENCE SEAWAY AND POWER PROJECT, which contractors dreamed of building for so long, has turned into a nightmare for some who have worked on it. Contractor losses on the various elements of the billion-dollar project are not known, but estimates run about $40 million.

It sounds completely unreasonable that anything like $40 million in losses should have been suffered to date on this work, for if true, it means contractors are contributing to—rather than profiting from—the facilities they are building to the tune of some 4% of their ultimate cost. As of now, however, there is some evidence of serious losses in several aspects of the work, with the canal and lock excavation a pertinent example of low bidders in distress (see p. 31).

How could so many bidders be so wrong on such an apparently simple item as excavation? The geology and soil mechanics of the area were known; as one astute observer has put it, "They could have read it in the text books." Apparently, if they did read about it, they did not believe that the glacial till of the area could be so hard to dig, or the marine clay so difficult to move. And just as the earthmovers showed an apparent lack of respect for, or knowledge of the soil conditions, so too did the cofferdam builders on the early diversion work apparently underestimate the river and the weather.

The contractors are not the only ones to have underestimated the cost of Seaway construction. The Corps of Engineers, as construction agency for the St. Lawrence Seaway Development Corp., recently received bids totaling $32 million on some dredging it had estimated at $14 million. And an additional $35 million in borrowing power for the navigation project has been sought in Congress, indicating a jump in the price tag from $105 to $140 million, with chances reported as good that even this won't be enough.

Nor is underestimation confined to the navigation elements of the St. Lawrence project. Contractors on the power facilities are also having their troubles—weather and labor problems combining to have made several of the dam, dike and powerhouse operations reportedly more costly than figured.

These unpleasant experiences make it clear that construction still is a gamble. The St. Lawrence Seaway and Power Project is a game for big stakes, with taxpayers, bond-holders, design-construction agencies, and contractors all dealt a hand. The contractors so far are not doing so well. We hope they will all play their hands better before the game ends.

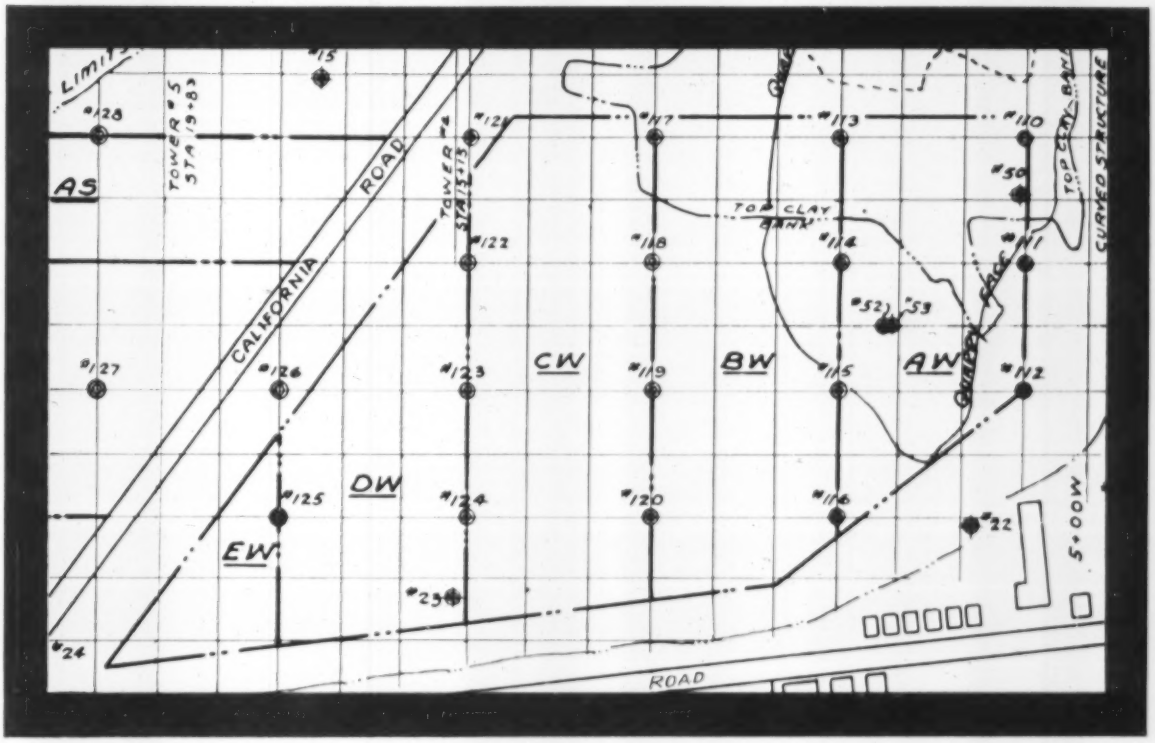
Missouri River Dilemma

THE CURRENT CONTROVERSY over how to use water stored in reservoirs built or under construction on the Missouri River (ENR May 2, p. 28) comes as no surprise. It was foreseen when the federal government began the current development program on that river several years ago, and it springs from the divergent interests of the people in the upper part of that great river valley and those in the lower valley.

People in the upper valley near the dams are interested primarily in power and irrigation; those in the lower valley, who are beyond economic transmission distances for power, want the stored water used as an aid to navigation. In this latter connection, the navigation difficulties of last fall on the Mississippi River below St. Louis served only to enhance their interest in obtaining more water from new dams on the upper Missouri to supplement the flow from the upper Mississippi and other tributaries.

There is no perfect solution to the problem presented by such a situation. Whatever is worked out is bound to be a compromise and the most logical body for the task is the existing Missouri Basin Inter-Agency Committee. Still, there are times when political considerations outweigh logical ones, and this may be one of them. If so, the problem could be laid before a commission made up of representatives of the states concerned.

Such a plan would have the advantage of taking responsibility for the final decision out of the hands of federal agencies and placing it squarely on the states that now are complaining that they are not being treated fairly. They would be charged with finding a solution that can be shown to distribute the benefits equitably among the states of the valley. The end result might be a Missouri River Compact similar to the Colorado River Compact, which would become effective when approved by the several states and the federal government.



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In addition to the all-steel pillow block shown here, Timken bearings are also used in the Type "E", Double-Interlock, Type "C", and Special-Duty pillow blocks—other versatile pillow blocks in the Dodge-Timken line with a wide variety of uses in industry.

To be sure of the finest bearing steel, we make our own—America's only bearing manufacturer that does. No other bearing can give you all the advantages you get with Timken bearings. Include them in your design plans... specify them for the machines you buy or build. Look for the trademark "Timken"—it's on the bearing that makes any machine run better. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable: "TIMROSCO".

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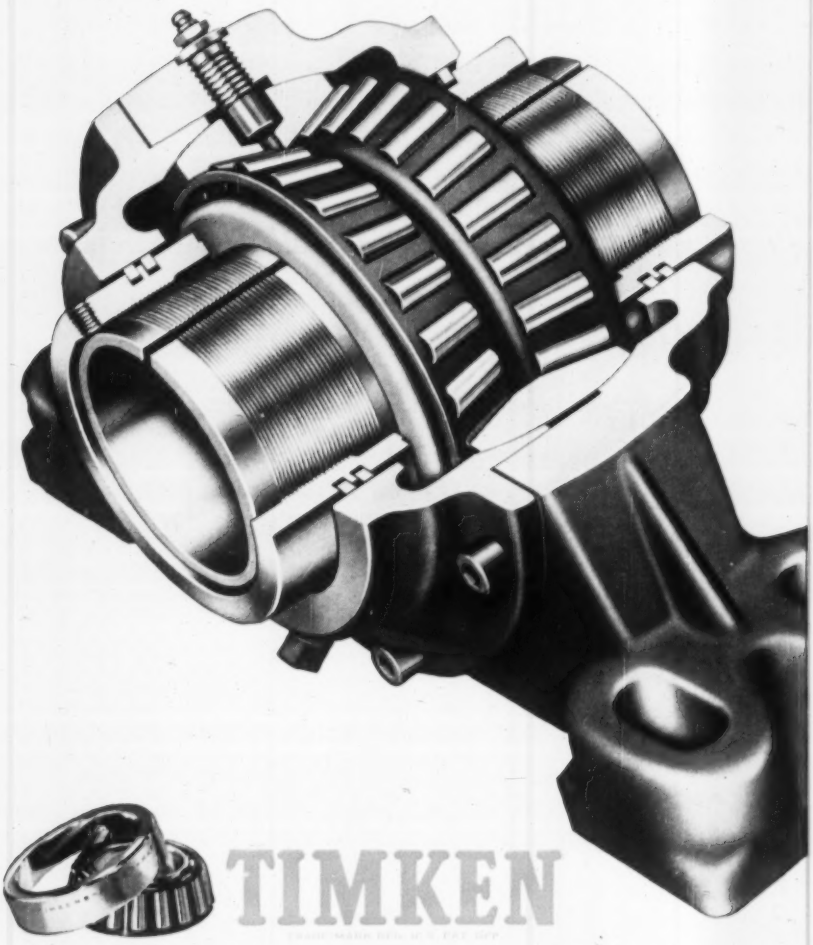
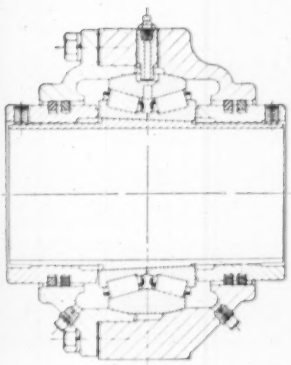
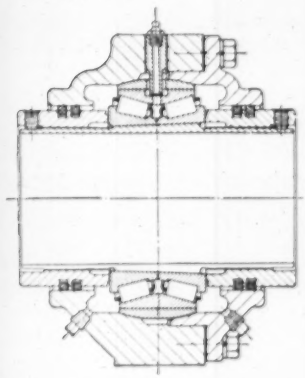




How **DODGE MANUFACTURING CORPORATION,** Mishawaka, Ind., mounts Timken bearings in the Dodge-Timken All-Steel pillow block. Above: non-expansion block with fixed bearing. Below: expansion block with floating bearing.



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